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Tracking Synthetic Cohorts to Investigate Historic Ability to Acquire Housing Tenure of Choice within Auckland's North Shore Suburbs

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A dissertation
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By

R. G. Skinner

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Tracking Synthetic Cohorts to Investigate Historic Ability to Acquire Housing Tenure of Choice within Auckland's North Shore Suburbs

by R.G. Skinner

Much of what is discussed in popular literature in regard to housing affordability is based on a premise built from indices. Indices, by their very nature, only capture discrete elements from a range of recently historical events. This limitation of data capture also limits indices' usefulness when applied against, in this case, actual households and families. A paper presented in 2003 by this writer used indices to provide commentary on a small and unique tenant cohort; Navy personnel. This study was criticized for not reviewing a longer time series. In an effort to rectify this deficiency, this dissertation uses synthetic cohorts to track and manipulate the possibilities of various households to afford a median priced house on the North Shore Auckland between 1955 and 2005. The results are also applicable to the wider 'civilian' community with similar salary construction as the cohort under study. Throughout the dissertation commentary has been applied to the definition of affordability and an alternative is proposed. In addition, the limitations of indices with respect to measuring housing affordability are discussed and it is suggested that this paper's less practical but arguably deeper process, be more widely used in lieu of the standardized index response.

Keywords: Affordability, Auckland, Expenditure, Family, Household, Housing, Median, Navy, Income, Index, Price, Salary, Suburb, Tenant, 1950, 1970.

PREFACE

The *raison d etre* of this paper is to respond to the critique of an earlier work of the writer that touched on but did not delve into, the reasons behind a tenant cohort experiencing difficulties in acquiring their housing of choice.

This paper's response has not been to seek an understanding of *why* tenants of the recent past have responded to the cost of housing by *not* purchasing a house, but will instead endeavour to shed light on whether the previous members of this cohort would have, or could have, experienced similar decision-making difficulties with respect to their housing purchase. Fortunately, the previous work used an isolated and somewhat unique cohort – Navy personnel – for which personal records are kept and have been kept, since this study's start point, 1955.

Although premised on a military cohort, the reality is that this study will provide a reasonable statement with respect to the wider community, given that the salary relationship between the military employee and individuals within the wider community are not, and were unlikely to have been in the past, too dissimilar.

From an individual perspective, whether renting or purchasing, the ability to enact the decision to engage with the housing market is determined by whether one can afford to conclude and from then on maintain the transaction.

Leaving aside any differentiation between housing types, New Zealanders experience housing in its two main forms – freehold and renting. Each form demands some expenditure, often repetitively, to ensure that the household enjoys and retains their tenure of choice. The amount, periodicity and effect on the household from this expenditure varies widely. While one can investigate the unique situations that exist across the spectrum of variables, commentators have defined and use a simplified model – an index – to determine the nexus between 'affordable' and 'un-affordable' housing.

Arguably, the benefits of this paper may have been realised through the use and designed interaction of suitable indices for the various cohort-, household-, family- or income-constructs that are necessary to derive an understanding of 'affordability'. However, for reasons that will be explained, indices do not isolate how an individual nor a household may be affected by the cost of housing and are, especially with this previously isolated cohort, fraught with potential error. The use of indices has therefore been limited to issues that cannot be fathomed through the use of raw data.

Instead, effort has been applied to discover and uncover in sufficient detail, discrete elements of the social conditions that existed within the time-series, to allow reasonable assumptions to be made on the use of the financial data that has also been collected in a parallel exercise.

Without this illustration, the rationale behind the assumptions could be contended, the conclusion(s) would be un-constructed, and the paper bereft of defensibility. Therein, there lies no apology for a 'social study' lying at the heart of a property question.

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EXECUTIVE SUMMARY

The aim of this dissertation is to acquaint the reader with the family-, social-, employment- and community-reality for the period 1955-2005 and to measure the effect these elements had on four unique household constructs as they saved for and ultimately tested whether they could afford a median priced house on Auckland's North Shore.

The literature study considers the definitions that are used as suitable explanations of 'affordability', it investigates what should be contained within an all encapsulating model, and then defines another. If it is difficult to describe, affordability is more difficult to measure. The dissertation touches on the difficulties, but makes no bold statement as to an improvement to the current measures. The literature study then reviews particular existing studies against the areas that this dissertation covers.

Part two covers the changing nature of the family and household entity, as these pillars of society have altered to meet the cultural mores of the day. The range of investigation covers those elements necessary to mount the financial investigation across the 50 year time frame: household composition; marriage age; fertility rates; propensity for and participation rates of employment; income thus derived; tax rates; expenditure; and savings.

Part three discusses the physical aspects of the equation; that of the residential house. The dissertation draws on the architectural history of New Zealand and establishes the changing design features that broadly define the decades from the 1950s. The discussion encompasses the exterior and interior components of houses, their size, and the average occupancy levels. The cost of houses on Auckland's North Shore is also examined as are the ruling mortgage interest rates as they applied through the time series.

Part four introduces and discusses the rationale for the choice of the Navy personnel who, in a synthetic life, will become a family member and the full-time employed bread-winner of the household to which they are assigned. Due to the nature of this military organisation the historic data remains available on record. The data on salary, promotion, and speed of advancement, allows one to build a reasonably robust argument with which to hinge the major component of the household income.

Part five brings together the hitherto disparate parts and these are intermingled within a spreadsheet to ascertain against various scenarios, whether the four households were able to save sufficient money in an appropriate time-frame with which to purchase and maintain the cost of a median priced house. As the data flows from all permutations would be prohibitively time-consuming, the years 1955, 1975 and 1990 were chosen from the eleven decades studied, with which to test the hypotheses.

Part six contains three interviews conducted with ex-serving Navy personnel. The interviews were recorded in an attempt to a) confirm, or otherwise, the dissertation data, and b) to bring a human 'face' to the dissertation, as up until this point the dissertation was wholly reliant on publicly accessible general data which, by its very nature, misses the human connection; the central theme of this dissertation in fact. There is no summary, nor a conclusion from these interviews. They are included for the reader's benefit only, as it is hoped they will provide some assurance to the reader to the methodology employed in the aforementioned data gathering and manipulation process.

Part seven contains the conclusions and recommendations.

INTRODUCTION

For military employees of the New Zealand Defence Force [NZDF], certain individual rights of choice are given up to the State, enshrined in law, and cannot be modified through contractual negotiation. This has obligations on the employer, which, *inter alia* has "an obligation for the State to provide accommodation assistance for its members as a consequence of the application of military law" (Klitscher, 1993).

Accommodation assistance provides for and supports military personnel's accommodation needs; it is accessible by all eligible personnel; it is multi-targeted and it is multi-layered.

One tranche of accommodation assistance is NZDF Service Housing, the provision of which is moderated through internal policy allowing a degree of single service flexibility as to how this assistance is delivered.

For instance, the Royal New Zealand Navy [Navy] invoke a 'seven-year' rule. Under this rule personnel are not permitted to occupy a Service House for longer than an aggregate of seven years (in Auckland) throughout their career. The rule ensures that the transition from a regulated service housing environment into the unregulated private housing market occurs within seven years through the demise of the service tenancy at this point (this rule is not however widely accepted by tenants as enhancing their motivation to save for their own home). Ultimately the 7-year rule presupposes of the serviceman the desired outcome by many New Zealander's; to own and occupy their own home. It also assumes that the service person will be, or should be, in a position to satisfy that ownership ideal.

However, previous research (Skinner, 2003) concluded that Navy's 7-year rule causes housing delivery inequalities to be exhibited for Navy personnel and that these inequalities dispossess personnel from securing their housing tenure-of-choice in the future.

This conclusion has been challenged from the premise of relativity i.e. the scale of the problem is not dissimilar to that of the difficulties experienced by previous generations of servicemen and women acquiring private housing. And, the argument goes, the present difficulties should be faced with the same stoicism and frugality chosen by earlier generations.

The possibility of this challenge was partly recognised through a recommendation from the 2003 study which proposed that a methodology be defined to demonstrate, from an historical basis, where Navy personnel may have acquired a dwelling.

This was defined as the Affordability Line and it was to be *reconstructed* given historic evidence. It was hoped that this would demonstrate if, and importantly where, previous generations of service personnel could secure housing.

Therefore, the recommendation from the previous study:

> "*That further study be performed on* [the] *tenant population* [and] *used to* [model] *a 'military affordability line'* ... [and] *that the historic relativity* [of this] *line be investigated ... to determine whether ... the line has ... moved ..*"

has now been reformed to include the relativity challenge and posed as a question:

> "Whether the current level of affordability and therefore inability to secure housing that supports a service career, has existed only since the 2000s or whether the relative values of disposable income, saving rates and costs of servicing private accommodation, have always been a negative feature of the service / private housing relationship?"

This question forms the genesis of these research hypotheses, which are:

1.) Since the 1950s, Navy servicemen and women have always faced the inability to afford the median house on the North Shore, Auckland and have had to contend with making negative choices with respect to their housing and or subsequent life-style;

2.) Definitions of housing affordability are not founded on an adequately encompassing premise; and

3.) Housing affordability indices are not sufficient in and of themselves to sufficiently explain whether any household can afford housing.

AIM

This research aims:

1.) To discover whether, and by what degree the first hypothesis is true. To do this it will be necessary to uncover the social conditions that existed for service personnel and their families and establish what were the opportunities to save for and purchase their tenure of choice;

2.) To raise a better definition of housing affordability; and

3.) To use the Navy cohort as a proxy – a synthetic cohort – for New Zealand households throughout the time period as they raise, consider and tackle the question of house purchase, to better illustrate housing affordability, in lieu of using an affordability index.

OBJECTIVES

The objectives of this study are then:

- to discover whether 'affordability' is in fact a relative term that needs greater scrutiny than is provided through the current models that are often centred around the 'median house price divided by average wage';

- to determine whether and by what variation, the affordability of private housing by service personnel has altered over the study period (1955-2005); and

- to answer as a consequence, the question whether and to what degree previous generations of Navy personnel have afforded the median house within the North Shore of Auckland.

IMPORTANCE

The results of this research will ensure that an appropriate balance is brought to the previous research completed in 2003. That research, arguably, did not use data of a sufficiently long time series to ensure that relativity [affordability across inter-generational Navy personnel] could be discussed at the conclusion[1]. This research should rectify that deficiency.

The results of this research may also lead researchers to consider the limited attributes of the various affordability measures and indices that appear quite sterile without the contextualising that occurs when relevant social aspects are used to present a human element to the index. It appears from this distance that many, if not all affordability indices, are used and commented upon without visibility of the known limits to that index. Without this aspect being made clear, some users of the indices could be accused of at best self-serving and at worst, disingenuous.

[1] Equally arguably, the research was not attempting to answer this question from the outset.

RESEARCH LIMITATIONS AND DIFFICULTIES

This research concerns the period 1955 through to 2005. The year 1955 corresponds to the date about which time the bulk of service houses were built for service personnel on the North Shore. The year 2005 represents the date at which analysis on the 2000-2005 period is now becoming available through publicly available data sources, and also includes the period of the previous research by Skinner (2003).

Despite the desire to consider the time-frame in minute intervals, for practical reasons the 50 year period has been analysed under different circumstances depending on the data, subject, and importance of the information to the research aim. Additionally, the methodology used to extract data has altered, depending on the subject matter and again, the importance of the subject matter to the research.

For instance, a small number of ex-Navy personnel who served in the 1950s and '60s have been interviewed for their recollection of service conditions in support of their ability to save for and purchase a house. These unstructured qualitative interviews do not supersede the quantitative data, but they do assist in providing context and colour to the picture existing in the 1950-1970 period, and to anchor the data in reality, which is difficult to do by other means. From the 1950/60s to the 1970/80s the information available is built from unrelated (to housing affordability) data sources and has mainly been derived from books, periodicals and newspapers, often at the macro level e.g. average wage rates are not able to be isolated against the professions chosen for study.

Much of the information from the early- to mid-1980s onward was available via the internet. Increasingly, the information written since the 1980s was found to be focussed on the lack of affordable housing being a contributor to a negative social consequence. Or, more accurately, the inability to secure affordable and suitable housing was recognised by researchers as leading to other social issues seemingly not related to 'housing'. This in itself has limited the ability to cleanly research, measure, review and consider various 'data'.

Often, data was not available in its raw state and was therefore not able to be cleansed for this research purpose.

Variously, data was not released by agencies unless payment was agreed to, or, as a student, one did not fit the commercial model that would allow data to be released in any case.

Where possible the analysis of and about the proxy Navy personnel has been made with verified numbers e.g. for salary, household expenditure, etc. Due to the period of research however, verifiable numbers were occasionally not available and where necessary this is stated, along with the assumptions that are used.

Important to this research has been the requirement to measure like with like throughout the period. For this reason, not all data that is currently being measured by various agencies e.g. the composition types of family groups, has been included in the research makeup as no like data is held for the earlier periods. This means, for example, that only those family groups that have received census scrutiny throughout the period are used i.e. single person, couple without dependants, couple with dependants.

Contrary to this example are the few cases where data has of necessity been homogenised with data from other sources to achieve some semblance of uniformity through the time series e.g. household consumption.

Some other difficulties arose that were not fully appreciated at the beginning of the research. A number of public sources that would ordinarily be expected to hold and therefore make available data, failed to yield appropriately robust data sets for the pre-1980 period, as they were not held in electronic format. Although most had data in hard-copy none of the agencies would allow a physical search nor review of this data, citing confidentiality or security issues. Principally this was data relating to the data sets of median house prices, suburb boundaries and individual Navy salaries.

In the agencies defence, the collation, record, and maintenance of this hard data would be a manual and therefore expensive exercise, even if the records could be found and catalogued appropriately. Some assumptions, with reasons, have therefore been made against these data sets.

Additionally, enumerator's returns for the New Zealand Census were systematically destroyed before 1969 (Olssen, 2003), and this has left gaps in the understanding and data context, especially for social history, some of which would be useful to colour this research.

Overall however, the above gaps in information, while not numerous, have left thinner areas than desirable in some aspects of this research and this may allow readers to employ their own views to the conclusions reached. While now unavoidable, if these views are widely dissimilar to the author's conclusions, perhaps additional research is warranted to fill these gaps and better define the outcomes reached.

METHODOLOGY

Due to the time period covered by this research, and the necessity to consider the period in distinct intervals to adequately define and background the results, it has been necessary to break the study into related but obviously separate parts.

Part One – Literature Study

Part one will look at the previous literature on the subject, concentrating on the various definitions of and the ability to measure housing affordability, before looking at particular studies related to aspects of housing affordability issues, principally in New Zealand.

Part Two – History of Family

This will cover the characterisation of the family units over the research period. Characterisation describes, for example, how a typical period family would be constructed, how many children they would have and when, whether the adults would be employed and if so, how many incomes and at what level would be expected within the household. Taken across the 50 year period, this work sets the parameters against which the synthetic family units will be held, to ascertain whether and how each family unit reacts to the question of house purchase and its maintenance.

Part Three – Housing

Part three will investigate the median cost of housing across the geographical area of study and define the size, scale and appointment of typical houses at each period. It will also look at and record the mortgage interest rates that applied over the period.

Part Four – The Synthetic Cohort

This part will argue the rationale for the choice of the synthetic family group types and the choice of the employed Navy persons. This latter decision will define the income of the Navy person and with that, to a greater or lesser degree, the expected income of the family units to which they belonged.

Part Five – Data Analysis

The connection of each of the previous parts will occur in part five. The previous outcomes will be connected in a manner that sets each family unit against the conditions and expectations of the day, the income streams they could receive and the expenditure profiles that were likely, and tests whether they could afford, and then maintain the financial burden of a median house purchase.

Part Six – Interviews

Although the previous sections provided evidence to answer the hypotheses, interviews will be conducted with three ex-Navy servicemen to confirm and fix the oldest data against social reality.

Part Seven – Conclusions and Recommendations

Part seven will provide the conclusions and set aside recommendations for further research.

PART ONE – LITERATURE STUDY

"The Story so Far"[2]

INTRODUCTION

The question, discussion and definition of housing affordability has reached a crescendo in the popular media. This interest has arisen because it appears that the ability to acquire freehold tenure in real estate has been steadily eroded, and in the recent past has rapidly dwindled, to become just a dream for many wannabe home-owners.

It appears, based on popular literature, that the rise in the *inability* to afford a house is a relatively recent and fast acting event that caught a number of sectors in the community unawares. Anecdotally, workers are having to relocate out of high priced areas into more acceptably priced locations (Austin, 2004); older superannuated people are selling family homes as they are unable to afford the cost of the rates which are tied to the value of their home; businesses are having to provide transport assistance to workers traveling from distant lower priced suburbs; families are being split up, with children and the non-working partner re-locating to a regional locale while the working partner earns in the city (Pavletich, 2007); and employers are having to provide location assistance grants to attract workers unable to live within reasonable commuting distance to their place of work.

As a consequence of this social and economic stress there have been numerous studies on the events that are supporting the rise in house prices along with studies into what would, could or should slow the rise long enough for workers to regain access into freehold real estate.

[2] "The Story So Far", a song by Rod Stewart, recorded 21 December 2004.

Many agencies involved in these studies use a definition called 'housing affordability' as the measure that provides the knowledge about how the population is reacting to the cost of housing. Based on the trend, these agencies variously laude the benefits of owning ones own house and congratulate the owners, while commiserating with those that do not and describe the difficulties in achieving that aim.

The difficulties in achieving home ownership formed a study undertaken in 2003 (Skinner) on an isolated cohort living on the North Shore, Auckland. That study concluded that of the group studied – Naval personnel occupying rented accommodation – only 2.7% could afford to save, purchase and service the cost of a median house on the North Shore within a specific time-frame.

Housing Affordability - Definition

Anecdotal evidence suggests that the question of affordability or, specifically, the *inability* to afford adequate housing, has received more media attention recently, possibly because the social consequences of the issue has been recognised as having multi-generational (Waldgrave, 2002) and macro–economic consequences for New Zealand (McKinlay Douglas Limited, 2004).

The definition of housing affordability has been described by many commentators. The definitions range from the simple:

> *"Housing affordability relates to the economic ability of households to make the weekly housing repayments necessary to live in their dwelling."* (Milligan, 2006)

through:

> *"Being derived from comparing the average weekly household earnings with the median house price and the mortgage interest rate"* (Wellington City Council, 1996).

to the complex:

> *"Housing affordability relates to the ability of households to rent or purchase housing in a locality of choice at a reasonable price, the capacity of households to meet ongoing housing costs, and the degree that discretionary income is available to achieve an acceptable standard of living. Affordable housing should leave enough residual income to cover other basic living costs, as well as allowing households to save for irregular but unavoidable costs such as medical and dental care."* (Statistics New Zealand, 2007)

It is not unreasonable to suggest that the definitions themselves are to an extent structured around the view of the agency responsible for their publication (Batten and Mahar, 1997) as, depending on how affordability is measured, the characteristics of households' housing needs will vary (Statistics New Zealand, 2007).

The myriad of definitions [seven are quoted by the Centre for Housing Research in a fact sheet prepared in 2006, plus one of their own, see Appendix A, pg. 127, and eight are quoted by Robinson (2006)] while they purport to articulate the phenomena, do not use a common language and therefore there is no objective definition (NZ Treasury, 2006). This fact alone means that research based upon one set of criteria, may not be able to be aligned with the results of another's research. DTZ commented on this in their extensive research paper 'Housing Costs and Affordability' (DTZ, 2004).

In describing areas of further research to that paper, DTZ commented "There is a need to develop an understanding of what is meant by housing affordability and come up with some agreed measures and ways to analyse affordability in the New Zealand context" (ibid, 2004). Affordability therefore, whatever that may mean, has yet to achieve the status of becoming a recognised form against which the multitude of measures can be referenced.

Batten and Mahar's 1997 paper on the limits of affordability indices provides an extensive review of the history of housing related indices and their current use. In their view the spotlight on affordability takes the focus off the fact that different households deal with the question of 'shelter' as a product of considering their unique means; both their income and to the question on housing supply / availability. The limits of a definition therefore become apparent when the complexities of the household are rendered into a calculation; there is no ability to equate the unique, and therefore no ability to review how each household considered the question of housing against their circumstance. An index therefore mirrors the "residual facts of how much [the household] has or will need to spend on housing relative to [the household'] income" (ibid, 1997).

This is of some concern. Many social agencies and government departments have to abide by the requirement to manage by fact, which leads them to consider and develop exclusive definitions that suit their understanding of this 'difficult to understand' concept. They do so through there *not being* a single entity of affordability that withstands total contestability.

The difficulties that this presents to this research vary. As the research will not be based on the formation, longevity and acceptance of an affordability index, the discovery of the definition that best fits this paper is not a requirement to the success of the research. However, in considering whether the research results, conclusions and recommendations are robust, it would be useful to consider and strike accord with a definition, if only to balance and review the outcomes.

As has been described, there are many definitions and yet of those reviewed there are two fundamental and continuing absences. The first is the exclusion of the hurdle rate for entry into the housing market; NZ Treasury describe this as 'accessibility', which is a reflection of initial conditions facing a potential tenant or owner [to house ownership] (Robinson, et al, 2006).

A DTZ paper (DTZ, 2004) reports that "affordability relates to ensuring that individuals and families can, *having gained entry*, maintain at least a minimum level of accommodation", implying, in the absence of a countervailing statement, that affordability is only measurable after the household is occupying a house. Statistics New Zealand does mention the requirement, suggesting that 'entry' and ongoing (costs) form part of the definition, but fails in my opinion to adequately isolate this aspect in their definition.

NZ Treasury, in their 2006 study into the measurement of the affordability of housing, also mention the hurdle rate but as their study is focused on absolute (calculated) measures, they do not present nor further refine a definition, while the Housing NZ Corporation comment that affordability is not simply a matter of housing costs and income levels, it is also about people's ability to obtain housing[3] (Maharey, 2005).

As McKinlay Douglas correctly state in their 2004 report to Local Government NZ: "there is a qualitative difference between the ability to service mortgage outgoings from income once a property has actually been purchased, and the ability to accumulate the necessary minimum deposit, whilst also meeting other costs including rental". Likewise, DTZ (2005), cited in Grimes (2006), found that households perceive the inability to save a deposit out of current income as a significant barrier to moving into home ownership.

The affordability definitions for rental accommodation are also silent on saving beyond that required for irregular but normal living expenses. This gap in the various definitions is also, in my view, a fundamental gap in the definition of affordability.

[3] While 'obtain' is not further defined by HNZC, it is taken to mean availability of supply rather than a household's ability to enter [the market].

The second exclusion is the element of choice with respect to the dwelling. Both definitions cited above, and many others reviewed, fail to include words that lead to the conclusion that the occupier has some individual choice with regard to the dwelling chosen to shelter their household. Of the above, the first refers to 'their dwelling' while the more complex definition from Statistics New Zealand refers to 'locality of choice'.

Neither specifically infer ownership of the decision onto the occupier, as to which dwelling may be acceptable. Inclusion is important as it accepts that control over one's life is an important social benefit. More succinctly: "it is about much more than just the ability to purchase (or rent) a house of a suitable physical standard and configuration at an acceptable cost. It is about the contribution that housing makes to achieving other outcomes in education, health, employment and building stronger communities" (McKinlay Douglas Ltd, 2004). These benefits are unlikely to manifest themselves until the occupier can exercise control over the dwelling's characteristics.

It is my contention that these issues do in fact form part of the essential ingredients when a household[4] considers whether and how to enter the housing market, and therefore should be constituted into an affordability index.

The definition constructed that includes the above arguments is therefore:

> **Housing affordability is the ability of a household to give effect to a decision to purchase and then service the cost of a code compliant dwelling of a size, style, and in an area of choice, and have sufficient disposable income thereafter to meet basic needs such as food, clothing, transport, education, and medical and dental care, necessary for the members of that household.**

[4] The use of the specification 'household' as an entity corresponds to the NZ Treasury report on the saving behaviour of New Zealanders in which Scobie (2003) believes that ".. many saving decisions are taken on a household basis.."

Note that this definition purposely excludes specific mention of the rental aspect of affordability, as a precursor of the jump from a rental to an owning situation will be tied to the decision making – which is included – involved in that purchase. The definition is also transparently associated with a household, rather than a family or person, as it is further contented that it is the constituent parts of a dwelling's inhabitants that support the progression, or not, of house ownership and it is to the household that the benefits, both positive and negative, accrue.

Housing Affordability – Measurement

There is a material difference and significant difficulty in bridging the gap between a definition and the formula that are used to measure what may be 'housing affordability' (Batten, 1997, Aschoff, 2004, NZ Treasury, 2006). Stone (1994), cited by Mitchell (2005) is quoted:

> *"There is no such thing as "affordable housing." Housing, in and of itself, is neither affordable nor unaffordable. Affordability is not an inherent characteristic of housing, but a relationship among housing cost, household income, and a standard of affordability. The term "affordable housing" is at best meaningless and at worst misleading, for it ignores or obscures the central question of who can and cannot afford housing".*

Given the above, it is not surprising that there is no single measure for housing affordability (Statistics New Zealand, 2006).

Statistics New Zealand suggest that the key factors that influence housing affordability for any household include:

- housing costs ('entry' and ongoing),
- household composition,
- the number of people in the household,
- household income,
- geographic location,
- housing quality, and
- the current housing market.

The difficulty with designing and using these elements in an algorithm has not yet been overcome, with the NZ Treasury in 2006 accepting that:

> "... *simply comparing points on the continuum over time and across subsets of the population only tells us part of the story. We also need to decide if a particular point on the continuum is affordable or not. This cannot be done objectively. We are required to make normative decisions around how much people should be spending on housing and how much residual income people need for other expenditure.*"

NZ Treasury (ibid, 2006) separate out measures into 'shelter first' or 'non-shelter first' principles, citing Burke (2004). The shelter first approach assumes that housing has first claim on the household budget, with other expenditure met from the remainder. The non-shelter first approach assumes that any other expenditure has first claim, with housing costs met from the remainder. The shelter first measure has primacy of usage.

There are two main types of measurement in the shelter first group. They are an outgoings (on housing) to income ratio [OTI], and a residual income measure [RI]. There is a third measure, similar to OTI, which is a house price to income [PI] ratio.

The OTI for existing home-owners is a ratio of mortgage payments to income. For would-be homeowners, the relevant outgoings are the potential mortgage payments given their deposit and current interest rates and house prices. The RI measure for both existing and would be home owners is then income less the above mortgage payments.

Despite the ability to measure with some formality and structure, there are issues using the OTI, RI and the PI ratios. A number of commentators have suggested that they do not adequately cater to the permutations that form the definition of 'housing affordability' (Batten, 1997, Rosborough, 2005, Treasury, 2006).

Many of the problems with these ratios are cited by Treasury:
the OTI:

- does not fully depict a household's ability to pay housing expenses and still cover other costs,
- does not incorporate any allowance for the number of dependents in a household, and
- does not encompass any measure of the quality of the housing.

while RI's:

- address the first problem of OTIs, but
- still [suffer] from the same flaws.

and PI's:

- The main factor not directly considered by this ratio is the prevailing interest rate.

Waldgrave (2002), commenting on the different measurement techniques to determine individual's housing affordability (citing: Ministry of Housing 1994, Waldgrave et al. 1996, Krishnan 2001), concluded that the proportion of gross income spent on housing costs per economic unit should not exceed 25%, using the outgoings-to-income ratio. This ratio is used by the Housing New Zealand Corporation to bench-mark income related rents. It is also the ratio used by most banks (ibid., 2002) to test income requirements on lending criteria. The outgoings-to-income ratio is determined using the following formula:

$$\frac{\text{TOTAL HOUSING COSTS}}{\text{TOTAL HOUSEHOLD GROSS INCOME}}$$

Statistics New Zealand describe personal affordability using the following 'housing indicators': affordability, suitability, habitability, tenure, security, crowding (freedom from), and discrimination. This organisation contends that housing affordability is considered to be whether the household has an adequate income, compared to the costs of housing and the quality of the dwelling. In other words, does the household have the capacity through discretionary income, to live in an acceptable manner? The underlying principle is that the expenditure on housing should leave sufficient residual income to cover other basic living costs.

Residual income [RI] is defined as the income left after housing costs have been paid. This is determined using the following formula:

$$\frac{\text{(TOTAL HOUSEHOLD DISPOSABLE INCOME - ACCOMMODATION COST)}}{\text{TOTAL HOUSEHOLD DISPOSABLE INCOME}}$$

Source: Housing New Zealand Corporation

A measure of hardship can also be defined using the residual income ratio. For the purpose of analysis, those who have an RI of less than 30% are classed as having an inability to meet other living costs and such a household would be 'in hardship' (Krishnan, 2001).

The use of these measures by organisations involved with the provision or support of housing in NZ , is viewed as being equivalent to a 'personal affordability limit'.

The OTI and the RI limits, as defined above, will serve as a check guideline for some of the data results at the conclusion of this paper[5].

It is of note that the ratios and measures above[6] miss one or more of the Statistics NZ suggested criteria to adequately explain housing affordability, and therefore it would appear that more than one measure is required to consider housing affordability, especially in the absence of a single measure that accomplishes what the current measures do not [described as the "Holy Index" by Batten (1997)]. The NZ Treasury suggest that this is currently the best compromise. For the purposes of this research the measure used by Treasury (and Waldgrave, 2002) – outgoings to income ratios and residual income measures – will be used where necessary to parallel these research findings. This decision recognises and is responding to Treasury's and Batten's view that each measure used will provide a different view and the use of more than one will provide a more complete view.

Noting the limits of available data, especially for the early periods of this research, and the methodology with which this data will be analysed, the RI is seen to be more responsive to the process, while the OTI's inclusion may offer commonality to researchers using that measure with more recent data.

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[5] It is recognised that the limits currently defined – 25 and 30% - have not been used throughout the time series. Different limits, of different measures, have been used by previous studies to adequately define *as at that contemporary period* the financial state of a household, as different social aspects results in different perceptions of what is, for example, 'poverty', 'hardship', 'unaffordable', and 'affordable'.

[6] There are other more and less abstract measures cited by Treasury, but they are not considered further here.

Housing affordability then may be defined, but the very act of defining also isolates the definition's use by others who may require a different definition to adequately describe what affordability means to them i.e. affordability as a recognised measure forms an intrinsic part of the mechanics used to explain issues around the health of children, mental illness (Mental Health Commission, 2007), marriage rates, fertility, and social cohesion (Curtis, 2007).

While assorted studies use housing affordability as part of a wider gambit, studies purely on the issues of 'housing affordability' also vary widely.

Housing Affordability – Studies

The financial effort of purchasing and servicing housing is usually the largest component of many household's expenditure and is central to the ability to meet basic needs (Statistics NZ, 2001). It is not only the initial capital cost of a house purchase that is important but the overall costs which are particularly significant. People facing substantial housing costs may be forced to live in unsafe, unhealthy or inappropriate accommodation to mitigate these costs.

Of itself, the elements that make up and support the measurement of the housing affordability definition have been measured since 1982 by Statistics New Zealand. Various studies have been undertaken with the intent of discovering *inter alia*:

1.) why the inability to afford exists,
2.) how to measure the phenomena,
3.) how then to deal with it,
4.) what the consequences are from it,
5.) how to ameliorate it, or
6.) how to compensate for it.

However, of the NZ and internationally sourced articles inspected for support in the area of an historical review of affordability, it was difficult to find research that demonstrated a retrospective view beyond two decades. The research that has been completed, rightly considered only sufficient data that confirmed trending across the time series involved in the arguments proposed. Milligan (2006) for instance, commented that affordability ratios had recently been calculated by MSD (Ministry of Social Development, 2003) and Statistics New Zealand (Statistics New Zealand, 2004c); however, the time series explored in these studies was much shorter than for Milligan's project (A review of family wellbeing statistics from 1981-1999).

To those studies that did touch on aspects involved in this research, irrespective of the time-series used, the following resumé is offered.

Affordability - why it exists

The Reserve Bank of New Zealand [RBNZ] (2006) has expressed concern at the level of house prices and has considered why house prices have risen markedly over the last decade. The RBNZ has a mandate to maintain national inflation at 1-3% and the rise in house prices are seen as part of a potential threat to that limit. In June 2007 the RBNZ submission to the Parliamentary Select Committee Inquiry into housing affordability in New Zealand argued that there are six main areas that have influenced the national rise in house price movement. These are:

1. The move in the early 1990s to a low inflation/low interest rate environment, which meant that households could borrow more and still service the higher debt;
2. Deregulation of the financial sector and increased competition in the mortgage market, which has increased the access to credit for many, if not all, households;
3. Population changes, which in the mid 1990s and early 2000s were driven to a large extent by gains from net migration;
4. A steady rise in real household income since the early 1990s, and a general fall in the unemployment rate;

5. A continuation of the taxation policy where the treatment of capital gains on rental properties appears to be relatively favourable when compared to other countries; and
6. Community expectations of continuing house price growth, which has resulted in not only a rise in the number of people buying rental properties but a rise in the number of owner-occupiers 'trading up'.

The RBNZ produced sets of graphs and associated commentary that demonstrated that the latest slide in affordability starts as late as 2004 for some measures (debt servicing ratio), but is apparent as early as 2001/02 in others (average house price to average household disposable income). The RBNZ study considers the answer to the question of 'why affordability exists', to be a series of macro-economic events being played out at the personal level.

Nevertheless the RBNZ's interest is purely economic and is focused on the future effects that housing affordability will have on the monetary conditions of NZ. The time series used in the study was mainly from the early 1990's, with the decade and half of data to 2006 used as the predictor of the potential for future events.

Measurement of Affordability

The NZ Treasury released a paper in 2006 that discussed the concept of and examined the approaches used to measure, affordability. Notably, Treasury's paper spanned evidence from the previous twenty years, concluding *inter alia* that affordability is difficult to define and that there is no consensus as to the best way to measure it across the agencies that undertake the measurement. Apart from confirming the difficulties of measurement, of equal interest to this research is the two decade time series used to form that opinion. Two decades represents the limits of many electronic data repositories (~1982/86). While this time series was sufficient for the purposes of Treasury, their data and results are limited to the final 2/5ths of the time series of this research.

Mitchell and O'Mally, in the 2005 DTZ report "How Affordable is Housing in New Zealand and What Strategies are Available to Reduce Housing Stress?" presented research on the various measures used to indicate housing affordability. The report commented on the most widely used measures: Rent to Income, Residual Income, House Price to Income, and the usefulness, limits and problems associated with each measure. In addition the report presented a review of the international use of these measures, why they are used and the employment of the results. While there were no conclusions, the report did illuminate what alternative mechanisms were being used to deal with housing affordability by a variety of agencies, some of which will be used within this paper.

Management of Affordability

If there are difficulties in the measurement of affordability, there is at least an equal conundrum in agreeing how to adequately deal with it. Pavletich, in the Demographia 2007 submission to Parliament on housing affordability, suggests seven key areas that should be focused on to restore housing affordability. They are as follows –

1. The need to set housing affordability targets.
2. Liberalizing land use processes.
3. Minimizing peripheral land price distortions.
4. Equitable infrastructure financing.
5. Economic impact analysis.
6. Professional education.
7. Research.

For each of these elements Pavlatich expanded on the measures that Government should employ to monitor the action that Government itself was being asked to provide.

Peter Brown, the Deputy Leader of NZ First appeared to suggest to the Labour Finance Minister Dr Cullen in March 2007, that foreign immigrants from European countries were partly to blame for some of NZ's housing price increases and indicated that increasing restrictions on non-resident foreign ownership of residential property would assuage some of the pressures.

The Local Government New Zealand submission (LGNZ, 2007) to the parliamentary submission on housing advised that "we are very reluctant to propose specific solutions given the lack of adequate and robust analysis to date on the possible solutions that have been floated", and then went on to advise a variety of strategies through which the issue of housing affordability may be affected, none of which were described as solutions.

The McKinlay Douglas Limited report (2004) on Local Government's role in the provision of affordable housing, reviewed the housing affordability issue from the late 1990's. The report, prepared on behalf of a number of city and district councils, considered the implications of housing affordability from the point of view of local council policy structures, enabling mechanisms, social objectives and community strategies. The report canvassed the role of central and local government assistance for housing since the 1940's through to 2000, commenting on the policies and results of policies that were in vogue at the time. Examples from overseas local governments e.g. Australia, Canada, U.S. and U.K. were also cited, along with their recognition of the issue, the social ramifications and the leadership response required to meet the problems. Not surprisingly the report recommended that local government take a higher role in dealing with the affordability "crisis" at regional level, by projecting a leadership role to facilitate the beneficial social outcomes from the provision of affordable housing.

Consequences of Affordability - Local population displaced

Cheyne et al (2006) investigated the rise in coastal property prices and the effects this has on the local communities. The study reviewed the price and social tensions that have been exhibited on the 'local' population as they become displaced through higher housing and rent values. The study's time line was post 2000 and was isolated to the coastal fringe estate. Nevertheless the study resonates with an outcome possible from this research; which will look at whether the population under study has had to look at alternative choices with respect to housing location.

Consequences of Affordability - Housing / Household life-cycle and inter-relationship

Grimes et al (2006) considered the holistic relationship of housing, describing housing as the "fulcrum" about which the economic and social factors of people are balanced. The study looked at the inter-relationship of the housing life-cycle with that of the individual / household life-cycle, and considered the social and financial impacts a decision in each area makes on the other. The authors commented on the costs of housing as a having a 'significant impact on the living standards of many people' and referenced the division of impact on high and low income households from high entry barriers of housing. Importantly, Grimes advised that to understand the visible characteristics of the housing sector, it is important to recognise how people "may behave as they progress through the housing market over their lifetime". Grimes cited a study by Rossi (1955) that provided the social criteria by which a decision to purchase a house was made – full and secure employment and the decision to start a family – noting specifically that until sufficient capital was behind the decision, the decision would be delayed, or not proceeded with if the hurdle rate of entry was too high.

Local area studied, effects from Affordability Issues

With respect to researching a specific area, rather than a general element of real estate, Austin et al (2004) considered the size and scale of the affordability issue in the Queenstown Lakes area. The research considered a wide range of data on house, section and apartment prices and related these to the incomes and household running costs of the demographic that was thought to reside within the area. It was notable in this study that the definition of affordability was raised, and considered to be the boundary between accessing adequate housing by spending a maximum of 30% of gross income. Important to this current research were the problems expressed by Austin regarding the difficulties of relating data between data sets, given the wide variety of collection and presentation techniques. Austin's research compared data from 1991 through 2004, a 13 year period.

Effect of Affordability from Development

From the perspective of land use and adequate planning as being a causal affect on the 'problem of housing affordability', Waitakere City has pressured the Auckland Regional Council to release more land for residential subdivision (Waitakere City Press Release, 2006). This pressure appeared to be as the result of the housing affordability study conducted by Demographia. In the Demographia study 100 major metropolitan areas taken from New Zealand, Australia, United States, Canada, Ireland and the United Kingdom were compared. The Auckland urban market was rated as "severely unaffordable". In comparison with the study conducted by Austin (2004) this study used the test of affordability as the median house price divided by income. A result over 3 is considered by this test to be an indicator of unaffordability. This test may be a useful gauge for this study, although the Demographia test perpetuates the simplistic answer as being the authority of the complex question.

Reducing the effect from Affordability

The Ministry of Social development has considered the housing affordability issue from the point of view of ameliorating the effects of the problem through various cash subsidies; in effect, treating the symptom and not the cause (Waldegrave, 2002). This paper has yet to determine whether there is or has been sufficient just cause for such an intervention measure, but intervention measures are seen to be a method of recreating accessibility into housing.

SUMMARY – Part One

Housing affordability is a complex issue that has thus far defied both adequate definition and mathematical rendering. Its impact is felt across the social spectrum in both positive and negative forms. As an entity it more often forms the basis of an argument for or against a programme to deal with social consequences, premised on a *lack of* affordable housing, for example: schooling of children, necessity of two incomes, the impact on family health and wellbeing, stratification and isolation of population across income levels, to name just a few studies. There are significantly less studies on housing affordability in and of itself.

Very few studies have looked at the intricacies and difficulties of equating the contemporary formula used to measure housing affordability, to the social reality of those measures. Of those that do, it is to indicate the severe limits of the equations and the care that is then required when responding to them.

The studies have generally been limited to two decades of historic measurement. In retrospect, such a time-frame generally provides sufficient data to support the aim of that particular study. Equally however, this time frame equates to the earliest data easily available off the internet through public records and this may have a bearing on the time-series used. Of those studies that did push back in time, significant use was made of indices rather than actual data, despite the above limitations.

Interestingly none of the studies researched provided a reconstructed social study to determine whether the conditions that have been experienced within the past twenty years had previously existed and what, if anything, had been done to rectify the issues then or compare the historic situation to the conditions that exist today.

PART TWO – HISTORY OF FAMILY

"Family Jewels"[7]

INTRODUCTION

As the period under study is extensive, it is important to explicitly recognise that the social norms of a community (whether defined as the employment-, family-, industry-, location-, or income-community) have changed significantly over the past fifty years.

While a review of all issues material to each family construct over the period would be ideal, visibility and discussion has been limited to those issues that provide illumination of the 'social context areas' that are directly relevant to the problem and importantly, are supported with available data. For instance, the research is concerned only with the geographic area of the North Shore Auckland and within this confine, only with certain suburban areas significant to the research cohort.

The aim of this background is to define the social character of the research cohort; their living, working and recreational conditions and the financial means with which they had at their disposal to realise these conditions. Although in part a social commentary, without it the full understanding of the values by which decisions may have been made in regard to housing cannot be fully explored nor appreciated, nor can the decisions and assumptions made herein be adequately referenced against the historical facts.

The cohort under research is a series of synthetic cohorts (see Part Four, Pg. 58) predicated on an employed Navy service person who operated from the Devonport Naval Base from 1955 through to 2005. For this reason, the information that follows is focussed on the North Shore area of Auckland and the household composition that is discussed relates to this time period.

[7] "Family Jewels", is a two disc compilation DVD by the hard rock band ACDC (1975-1993)

History of North Shore Development

Prior to 1959 most of the North Shore, although well-established since the mid 1800s, was made up of quiet seaside villages, farming or fruit growing communities. The suburbs above Castor Bay did not exist. Those commuting daily into Auckland did so on ferries running from Devonport, Bayswater, Northcote or Birkenhead, suburbs that were close to the transport hubs (North Shore City, 2002).

In 1959 the Auckland Harbour bridge was opened. The expansion that took place on the North Shore as a result of this improved access was vastly underestimated (ibid. 2002), as it opened up the area to massive commercial and residential development (McDonald, 2004). The 4.9 million vehicle crossings in the first year had increased to 10.6 million by 1966.

Experts calculated that the bridge would reach capacity by 1970, so by 1966 an additional four lanes had been added. In 2003, approximately 59 million vehicle crossings were made[8] (Hewett, 2005).

North Shore Suburbs

Before the opening of the bridge the populace of the North Shore was largely limited to the suburbs surrounding the harbour transport hubs.

However, with the advent of commutable roads, pressure from people eager to realise a ¼ acre section meant that more and more land was developed for Auckland's city workers. Development followed the Harrison and Ullman theory (cited by Hopkins, 2000) of urban land use – following transport and communication links – as, up until the 1980s, development tended to follow the major roading networks, the seaward facing hills and centres of shopping and service areas. Post 1980s the opportunity costs of redeveloping smaller plots of land within ¼ acre sections became less than developing further expanses of farmland.

[8] At the projected 2.5% increase from then, the figure is now about 65 million vehicles per annum.

Consequently, infill housing - "the scourge of our time" (Barry, 2007) - with plot sizes as low as 350m2 until the early 1990s, became acceptable. With this phenomenon came a significant increase in population densities and with that, a rise on utility and infrastructure services. In the late 1990s and early 2000s, people again returned to the development of larger areas of land with single dwellings, further from their place of work, increasing their commuting times accordingly.

Statistics NZ census data records 59 separate suburbs on the North Shore in 2007. Many of these are sub-units of once larger suburbs that were reduced in size to maintain uniformity of population density between suburbs for census purposes[9]. Re-aggregating some of these newer areas up to the original suburb boundaries has been necessary to provide continuity of boundaries throughout the period of research. Nevertheless, there has been significant suburb delineation change on the North Shore, as areas have been progressively developed.

The opportunities for house purchases in the 1950s were, and still are, limited by the availability of houses, which is in turn limited to a degree by the developed area. Therefore, this research looks at the effects on five of these suburbs; Devonport, Birkenhead, Northcote, Takapuna and East Coast Bays, while Albany and Glenfield are excluded as they did not operate as places of residential and commutable communities, until the latter portion of the period.

[9] This is to maintain 'mesh-block' uniformity for census purposes. Note that geographic suburb boundaries differ for Council, postal, political and Fire Service purposes.

The accompanying map demonstrates the extent of 'North Shore City' as it is now known, with the grey area of Devonport used to indicate the location of the Naval Base.

Thus, the development of suburbs on the North Shore will be the first absolute influence on the availability of choice of location for the proxy family units.

Family Composition

Each of the decades from 1950 through to 2000 have been characterised by subtle economic, social, health, and employment differences. These differences can be explained and, in the main, measured. These functional and social mores support the understanding of whether, when and how each family unit could proceed with the actions to acquire a dwelling.

Fifty years ago families were typically made up of a working father, and a mother who was "tied to the home" (Phillips, cited in Hughes, 1994). Men and women married in their twenties, and their children, often three or more, were closely spaced in ages with the first arriving soon after marriage. Children grew up and left home in their late teens (Hughes, 2004).

Today a couple is more likely to be at the upper end of the reproductive span and will begin a family at significantly later ages than did their parents. If they are working full-time and are over 30 years old, they may be childless. And, whatever their employment status, a couple is likely to have fewer children than a generation ago (ibid, 2004), due in part to the later formation in marriage of the family unit.

Marriage

The delay in family formation has been a significant structural change from the 1950s. The mean age for marriages during the 1950s was around 20; recent data – Graph (1) – shows that in 2001 it was 30 years for males and just over 28 years for females (ibid, 2004).

Graph (1)

This change is having an effect on the age of first birth which is rising, and this is itself leading to a corresponding increase in the couple-only families i.e. couples without children (Jackson, 1996).

Changes in family type (and employment, argues Hughes (2004)) have significantly altered childrearing arrangements since the mid-1980s. In particular, there has been a decline in the proportion of families raising young children that consist of a father breadwinner and a mother at home.

The single largest childrearing family type/labour arrangement is becoming couples with both partners in paid work (many of which, when children are young, consist of a father in full-time work and the mother working part-time).

By the end of the 1990s this demographic trend was evidently imbedded and delayed childbearing became increasingly the norm. This is now having large effects on family structures: today nearly half of all births are occurring to women over the age of 30 years.

Studies suggest that the current very low fertility rates and delayed childbearing are caused by factors including investment in prolonged study, workplace demands, and the need for two incomes to support a family. Further, many women are either avoiding pregnancy or are limiting the number of children they have, to stay in the labour force (Hughes, 2004), all of which are material changes from the family-oriented 50s and 60s.

Other commentators, Coontz (1992) especially, draws attention to the financial impact on the household from the blurred and confused boundary between economic need and personal want, 'requiring' that a second income support the advertised desirable social outcome, and thereby contribute to the cause that women actively delay child-bearing.

Families

Having children was a pre-occupation for families in the 1950s, and this baby boom existed well into the 1970s, peaking in the mid-1970s when more births per female were recorded than since the late 1800s. From 1971 birth rates dropped, at first steadily, and then rapidly to go below the lows of the 1930s. They have declined, except for a "baby-blip" in 1991 (Pool, 1996), continuously since (Jackson, 1996).

This baby boom phenomenon was also part of and as a result of the marriage boom (Hughes, 2004). The average age at which families were begun is indicated through Table 1, which shows that the age trend dropped very gradually until 1970-75 but has been rising ever since.

Table 1: Mother's age at First Birth and Fertility Rate, per year.

Year	Age of First Birth	Fertility Rate
1960	26.8*	4.24
1962	26.2	4.19
1965	25.5	3.54
1970	24.9	3.17
1975	25.0	2.37
1980	25.7	2.03
1985	26.6	1.93
1990	27.7	2.18
1995	28.6	1.98
2000	29.7	1.98
2005	30.3	2.00

* - Extrapolated.

Source: Modified from Cook (1997) and Statistics NZ (1996).

Persons per Dwelling

Given the high rate of child production by the family unit for the first twenty years of this study, and the reduction since, it is not surprising that there is a commensurately stable and then reducing levels of persons per dwelling at Table 2, over page. It is of note that the typical family unit in the 1960s was somewhat larger than that of 2000. Indeed the trend has been for lower family numbers in each of the successive decades since 1955 (Jackson, 1996).

Table 2: Persons per dwelling

Year	Persons per Dwelling
1955*	3.9
1956	3.9
1960	3.9
1965	3.8
1970	3.6
1975	3.6
1980	3.2
1985	3.2
1990	2.9
1995	2.8
2000*	2.8

Thus a family unit in the 1950s and 60s would be atypical in the 1990s and 2000s. Gone are the large family units, formed around the proposition of the nuclear family. The age of the mother at her first born is not now tied to the age of marriage i.e. the age at first born is becoming closer to the age of marriage. Those that are born are likely to be limited to two rather than four children, born increasingly toward the end of the women's fertility cycle.

Increasingly a couple is likely to have, by design, nil children and prior to becoming a couple, will have lived separately, each as a 'household unit'.

* - Extrapolated, Source: Statistics NZ (2001)

Both will likely work, especially if there are no children, although it is equally likely that the female will be engaged in part time, as opposed to full-time work, even with children.

In 1954, this father and mother (the mother's brother-in-law is on the left) were in their early 20s, married, living in their own home and supported by the father's income. By the time the mother was 24, they had had two more children. Their daughter, 2-years-old at the time of this photo, married when she was 26 and had her first child when she was 33, a second when she was 37.

The accompanying photo and caption eloquently captures the spectrum of family changes that have occurred since the 1950s.

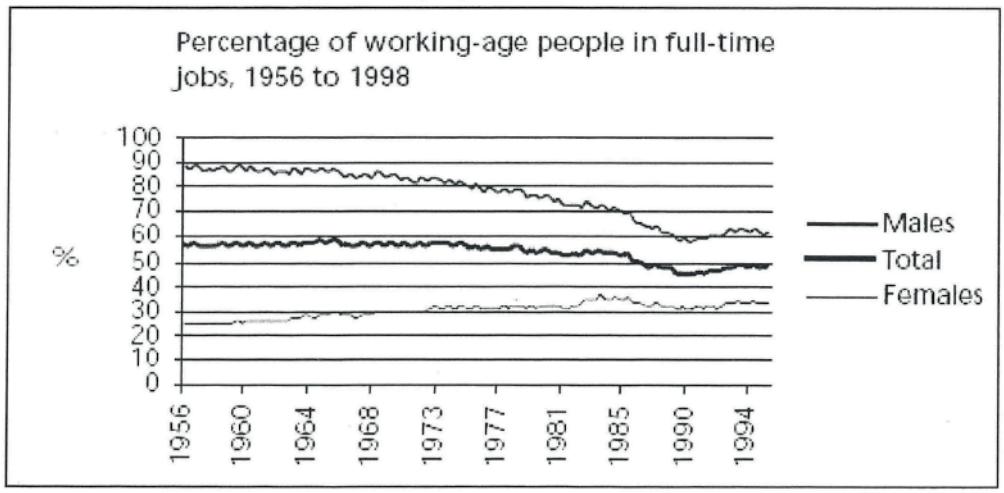
Photo courtesy of Lynne Hollingsworth

Later in this paper, the information about personal unions and family construction and size, is graduated against the premise that in the main, these observations hold true for the synthetic cohorts and their proxy household units and therefore, for each of the decades, a social construct can be postulated against which a financial picture will emerge.

Employment Participation

The employment participation rate demonstrates the propensity with which a person is likely to be engaged in employment. Traditionally, as has been inferred above, many more women in the 1950s were inclined to remain at home and raise their children, and these women (mainly) not in the labour force, were supported financially (mainly by males) (Callister, 2001). This inclination was encouraged through the requirement for females to leave employment on marriage, and this 'marriage bar' existed until the late 1960s (Spoonly, 1994). Female's full-time employment participation rate has altered since then as the following table (3) shows.

Table 3: Trend of full-time employment ratios between male and female workers.



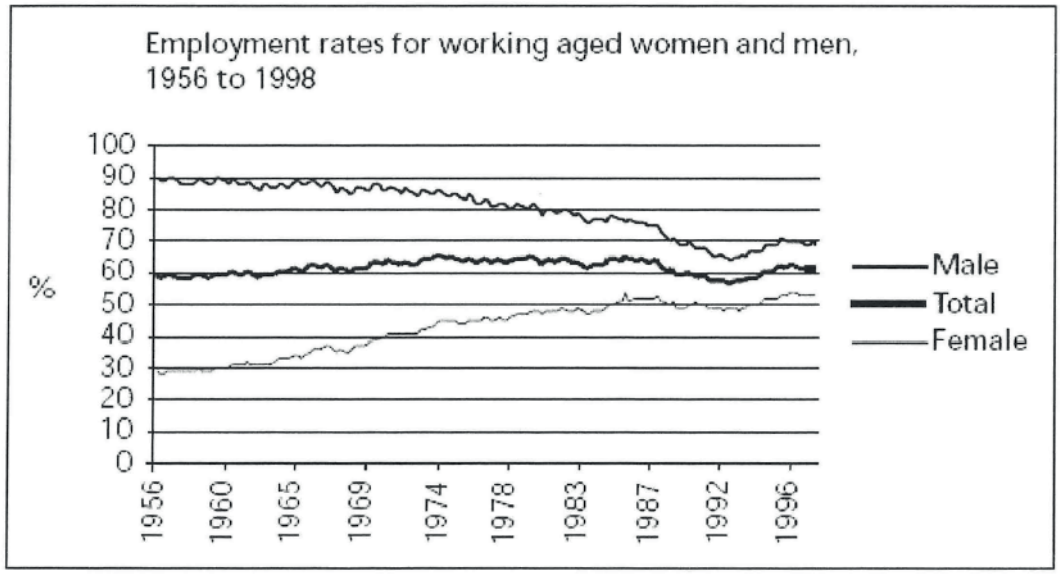
Source: Derived from Chapple (1994, 1999)

The highest full-time employment participation has been amongst women in the 20-24 age group, and again in the 40-49 age group. The lower participation rates between these two age groups reflects childrearing by women. In more recent years this lower rate has started to flatten, as women delay childbearing and return to, or stay in, paid employment.

Cherlin, cited in Coontz (1992), argued that the increasing proportion of married women who work outside home has been a long term consequence of rising real wages, shifts in the demand for labour, greater education for women and better control over childbearing.

For the purposes of this study, there is the complicating matter of assessing the participation rate of full and part-time employment. Therefore, while the above table is used to explain female full-time participation rates across various years, the following table (4) has been used to indicate the propensity for women to be occupied in a part time role.

Table 4: Trend of 'all' employment ratios between male and female workers.



Source: Callister & Rose, 2001

When participation rates for 'all employment' for women (based on the percentage of women working for one hour or more a week or actively looking for work) are reviewed, the graphs show that participation rates for women have increased strongly from the early 1960s through to 1986 (Callister & Rose, 2001).

However, while the participation rate is higher, and the male/female gap converging, the convergence rate has stalled and the gap remains at or near 20%, with females hovering at 50% participation. This suggests working aged women are still just as likely to be working as not. Through changing working patterns, males appeared to have lost employment to females especially over the 1970-1992 period and therefore, while there still remains strong gender-based differences in the work patterns of partnered mothers of young children compared to the fathers, over time the mother's patterns of work have been changing to become closer to that of fathers (Callister, 2003).

The time demands of childrearing need to be borne in mind when assessing trends in female employment (particularly for those with no formal qualification) as three variables underpin their employment participation: the presence of dependent children, the age of youngest child, and whether they are a sole parent. Census data also demonstrate that women's employment patterns change significantly over their childrearing years, as the youngest child grows older. For example, in 1996 only 30% of women with a child under one were in paid work and of those 61% worked part-time. However, for women with children aged 13-17 the proportion had risen to nearly 75% in paid work with only 30% of these women working part-time. These employment trends will have implications on the assumptions used to model employment characteristics of the partners of service personnel.

Income

As trends in the level and distribution of income affect a family's ability to secure the goods and services upon which their well-being depends (Callister & Rose, 2001 and Hughes, 2004) it is important that the ability of people to support themselves and their families be understood for the modelling purposes of this research.

In the last 50 years, many factors have influenced changes in paid work. These include increased globalization of commodities (including worker's skills), technology, economic and social policy, changing consumer preferences, demographics, changing aspirations and opportunities for women and men, changes in unpaid work, and changes in family and household type (Callister & Rose, 2001).

This social backdrop of change influences and influenced the income expectations for each generation of workers and affected their choices of employment type, hours of work, income, and expenditure and savings profiles. Of interest to this study are the income levels of workers and their ability to save or propensity to expend, any discretionary income.

The median real income levels of workers (ages 20-24) for 1950-2006, are as per the following table (note that pre-1967 (£) pounds have been converted into ($) dollar values):

Table 5, Source: Rankin, 1993. * - Interpolated, ** - Extrapolated

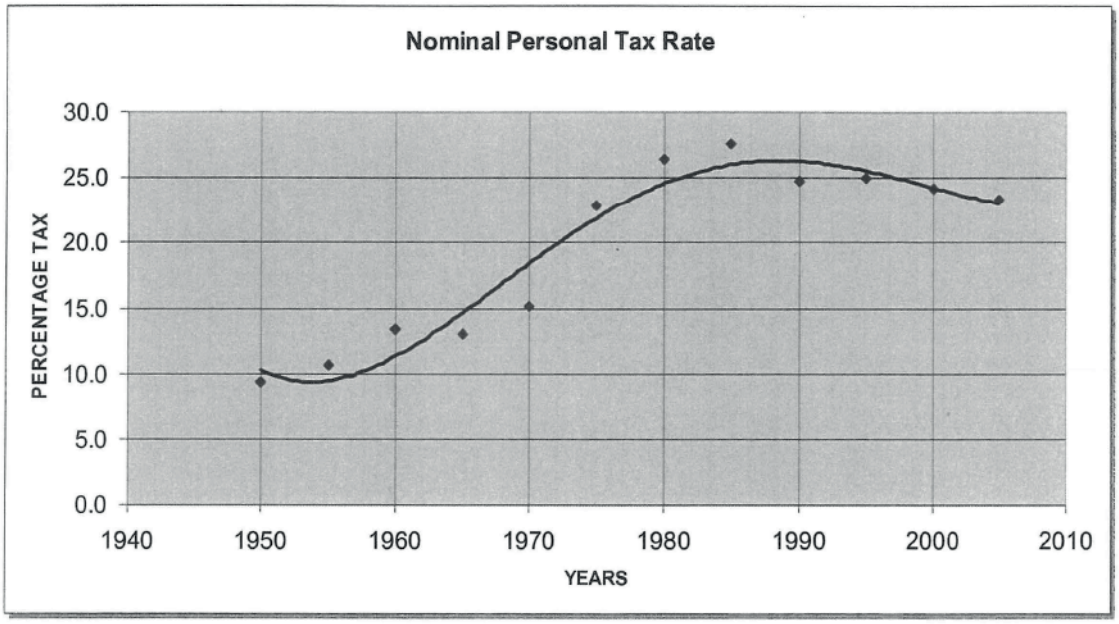
Years	Income (Male)	Income (Female)
1951	$ 859	$ 575
1956	$ 1,182	$ 803
1961	$ 1,506	$ 1,048
1966	$ 1,913	$ 1,385
1971	$ 2,949	$ 2,211
1976	$ 5,705	$ 4,961
1981	$ 11,424	$ 10,243
1986	$ 18,096	$ 16,768
1991	$ 20,240	$ 19,940
1996*	$ 22,560	$ 22,226
2001	$ 24,900	$ 23,932
2006**	$ 28,244	$ 27,146

It should be noticed that the rapid rise in income levels over the 1971-1991 period corresponds to the high inflationary conditions being experienced at that time. From 1951 to 1976 the census record for female income was dominated by women not in employment i.e. above 50% of women of suitable age. And, although female wage rates increased alongside their male workers, they were significantly less than 80% of a male's wage until the 1980's. In the 1990's, at a time when females were relinquishing child bearing for work, this gap closes toward 100% of the male's wage. From 1981, the number of women with nil income had dropped under 50% (Martin, 1997).

Disposable Income

Because household incomes are measured before tax, a major outlay for households is the income tax extracted before consideration of other expenditure (Cook, 1999). The tax rates for the period have been determined in nominal form for the period 1950-2005 and are shown on the accompanying graph (2).

Note: 1994 years and beyond are extrapolated.



Graph (2), Source: Statistics NZ (2007)

It is obvious that the rates have materially advanced from the 1950's with the trend-line increasing across the entire period from below 10% in the 1950's to a nominal rate above 25% in the late 1980s, before reducing from the beginning of the 1990s.

While an individual's tax rate and the effect this will have on their disposable income (net of tax) will be a personal affair based on particular circumstance, this research has used the tax rate from the chart as applying across the spectrum of possible incomes from the synthetic cohort employees. To do otherwise would require a per-year and per-income calculation to be performed on each employee across the time series.

Military Income

Military income levels applicable to the synthetic cohort employees are discussed in Part Three of this paper.

Expenditure

A number of researchers (Scobie etal (2003), and Cochrane (2007) citing Giles and Hampton (1985)) have described significant difficulties extracting data on the expenditure behaviour of families and households across earlier time periods, as no particular person-, family-, or household-specific expenditure was consistently recorded until the Household, Savings and Expenditure data series was begun by Statistics NZ in 1986, through the Household Economic Survey. Where information has been collected, it is often measured and collected under slightly different formats, which makes later referencing across the time series problematic.

Some information has been drawn together from Statistics NZ on expenditure profiles across Household units, and from the NZ Yearbook series, which has similar information. However, this effort has severe limitations as only four consecutive years of data have been extracted that is of sufficient robustness.

To gain some insight to earlier years, the Consumer Price Index has been used to cut an assumed expenditure profile for each of the proxy households.

It should be noted that as service personnel have specific employment benefits accruing as part of their service, there are some items within the expenditure tables that have been altered or removed. These relate to items that would not be recorded as 'expenditure' if the service-person were residing in on-base barrack or off-base service accommodation. For example: mortgage payments, rental (to the same levels), property maintenance and services, floor coverings, health services, and accommodation services.

Saving

The rate of saving for each of the households is based wholly on the absolute difference between the statistical rate of household consumption and that of the household's after tax income, from all sources.

SUMMARY – Part Two

It is clear that the social aspects of family and household life have changed iteratively, cumulatively and significantly, since the 1950's.

The definition and characterisation of the proxy household units represent the culmination of the accepted definition of social behaviour from each previous time period. Although a household unit may retain the same construction in the 1990s as it did in the 1950s e.g. 'Couple', the relationship exhibited within that household with respect to marriage and work and income, has materially changed and with that, the ability and method of interacting with the wider community and its social expectation, has also changed.

The accepted social behaviour and the means by which that behaviour can be exhibited will have dictated the propensity to decide whether and when to save, purchase and service the costs of a house.

PART THREE - HOUSING

"Burning Down The House[10]"

INTRODUCTION

The ownership of a house of choice is considered by many to be an immutable right and freehold land tenure is the traditional ownership of preference. Many social services and economic measures are based on national levels of house ownership. These measures have demonstrated that change in the social fabric of New Zealand has altered the rate of home ownership and the trends exhibited are expected to continue.

Latterly, the macro-level initiators that drive these changes appear to be the changing social environment: student debt, later marriage and ultimately later child bearing, followed by an increasing rate of divorce. It has already been demonstrated that the current social environment is significantly different from that which existed twenty and certainly forty and fifty years ago, but the recent phenomenon is an extension of the changes that began at these earlier times.

These social changes are translating into an altered perception of tenure choice, the formation of more households, and a move away from freehold occupation into a renting situation. This is having an effect on the demand for housing, which is especially noticeable in the Auckland region. Additionally, this demand is being magnified by the migration of inter- and intra-NZ migrants, who are favouring Auckland as a destination of choice. It has been predicted that the Auckland population, now at $^{1}/_{3}$ of the NZ population, will continue to increase at a rate above that of the projected supply of new housing.

[10] "Burning Down The House", a song written by David Byrne, performed by Crowded House (1983)

The resulting demand for housing is having an affect on the median prices nationally and in Auckland especially. Since the early 1990s the North Shore's median price has risen by over 278%[11]. Conversely, wage rates have failed to keep pace, with a rate rise 100% behind the house price rise[12]. While interest rates fell by around 4% in the early 2000s, this was not enough to maintain a static affordability index and since then, interest rates have risen.

Academic and economic researchers define the ability to acquire and service the cost of a house, as the affordability index. The index relates average mortgage interest rates with average wages, compared to the median house price. Over recent times this index has steadily worsened, with houses becoming less and less affordable by this measure. Traditionally, Auckland's houses have been less affordable again, than the national average.

While the affordability index has its proponents it may be limited in its design. As an index its true worth is in providing visibility to trends experienced across macro measures. However, being an index it fails to account for real differences over time to the relative changes in the index components.

For instance, house design, appointment, size and materials used today are worlds apart from these elements that were the norm forty and fifty years previously. Family size, and therefore the cost of family support, has changed significantly, as has family composition, age of union and the timing and number of offspring.

While these changes are obvious, there is no accounting of these changes within the affordability index which survives, predicated on the assumption that 'income' (or more appropriately, the residual after basic need expenditure) is a natural consequence of the aforementioned social stricture.

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[11] 1992-2005

[12] Based on the approximate 2% annual increase in wages over the 13 year period, this represents a 167% increase.

As the usefulness of affordability indices is one of the challenges to this paper, the aim is to provide visibility to the change in median house prices across the North Shore, represent the types of houses that would likely have been the predominantly desired house for each period, and demonstrate some of the material changes to the interior design of such houses.

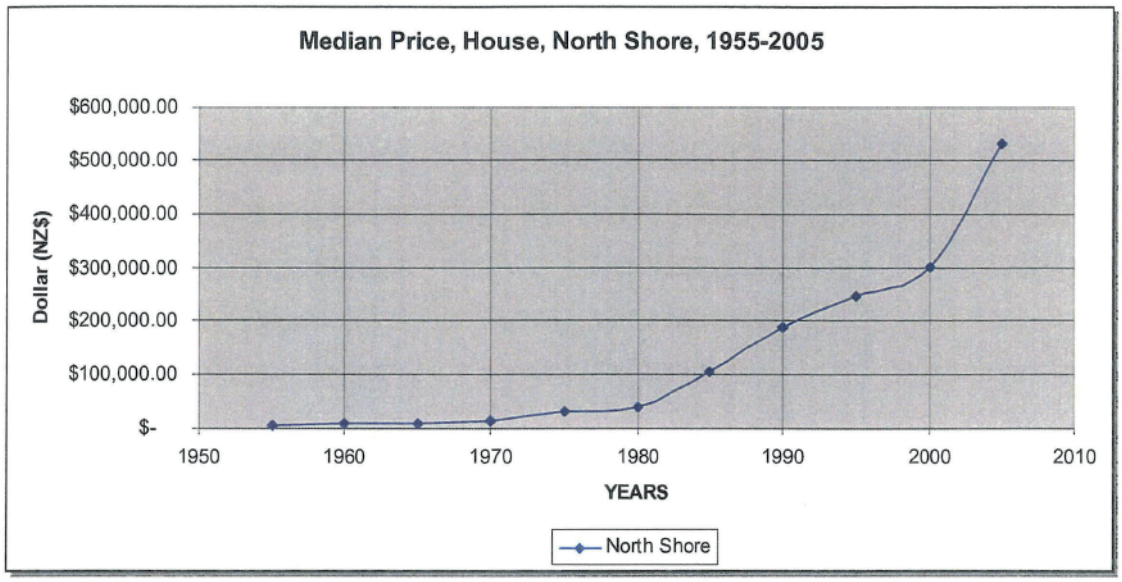
These transformations will be brought into the equation with family / household incomes in Part Five, Pg. 73.

Median House Prices

The median prices from the sales of all residential separate houses have been researched across the period 1955-2005, for each of the five suburbs - Devonport, Birkenhead, Northcote, Takapuna and East Coast Bays - using Valuation Department and QV sourced data. The time series was measured at 1-year periods with the median house price recorded to December of that year.

QV data was instrumental in this time series but did suffer from a number of data gaps. These have been filled with interpolated data as appropriate.

Graph (3) on the following page demonstrates the median house price across the North Shore for the 1955-2005 period. For the records across each of the suburbs, refer to Appendix B, Pg. 128-130.



Graph (3), Source: QV (2007)

In summary, the median house prices across the period show a continual upward trend although the rate of increase varies significantly. There are only slight pauses and no consistent downward movement to the increases.

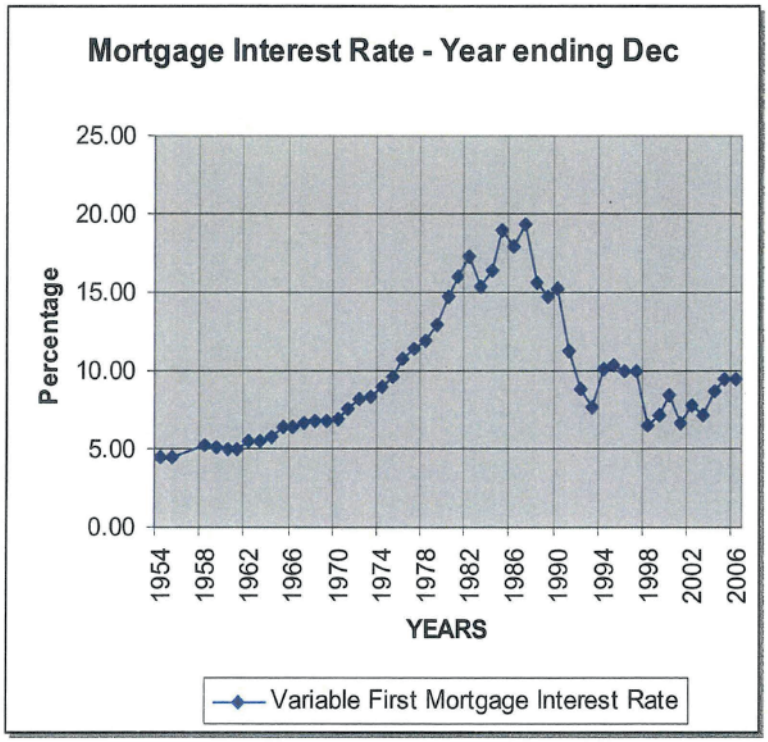
The upward rate of change accelerated from the 1980s and with minor variations, has remained at or higher than this rate since.

Mortgage Interest Rates

The cost of borrowing is one of the major drivers in the consideration by any household intent on making the transition from a rental situation into an ownership position. It is therefore important to the overall question of affordability, what the cost of servicing the mortgage will be to the proxy households.

For the purposes of this research an assumption is that a salaried worker, or a household supported by a salaried worker, is likely to be in the position where the household will require a loan to cover the balance between any deposit saved and the actual cost of the house. That loan balance will attract a mortgage interest rate that will be serviced, along with the amount borrowed, for the life of the mortgage.

The mortgage interest rates over the period are shown on the accompanying graph (4).



Interest rates are seen to have been on the increase from the beginning of the research period and accelerating at an increasing rate during the 1970s. The rate of change slowed in the 1980s but the rates still increased and did so until the latter half of the 1980s. Since then NZ experienced a determined and consistent drop in mortgage rates up to 2005.

Graph (4), Source: Statistics NZ

From a household's perspective, the cost of servicing a borrowed dollar has been constantly more expensive than that of any previous period right up to the 1990s, when the rate of borrowing declined. Nevertheless despite 15 years of relative decline, as at 2005 the interest rate was still 2.25% higher than that of the 1950s and '60s.

House Types and Changes

In the early 1950s New Zealand residential building architecture was dominated by large numbers of what are now known as State Houses. The build rate was in excess of 3500 per annum in the 1950s and such was the rate of building that "the architectural considerations so ardently expressed in the late 1930s were replaced by an unforgiving standardisation and a much reduced regard for quality of construction" (cited in Fleming, 2000).

The 1950s house had a very low pitch roof, or even a flat and overhanging roof which was likely made of asbestos, due to the scarcity of mild-steel in the early 1950s. However, cladding materials were changing and the introduction of the concrete block as a cladding and structural member was seen, although bevel-backed timber weatherboard predominated. Timber joinery was standard. A garage would be unlikely earlier in the decade, but a garden shed located on the section's ¼ acre, likely.

Services such as gas heating and cooking, electrification for appliances and water and waste reticulation were all standard features by the 1950s.

Even with the rate of building of the state house, a house design known as the New Zealand Bungalow gradually dominated the residential scene (and maintained a strong presence up until the 1980s). Of a plain and utilitarian style, the bungalow was strongly influenced by its pre-1950s design forms. It had few frills and little imaginative style; boxed eaves, narrow entry, plain fibrous walls and stripped down scotia, skirtings and architraves.

Fibre-cement sheet and board cladding made an appearance from the 1960s and these materials, being relatively cheap and stable in use, gradually asserted their usefulness, especially once different styles became available.

Interiors were also changing. Plastic laminates made their appearance in the 1960s and their influence increased over time. Large glazed areas became an increasingly dominant feature from the 1960s and sliding aluminium doors made their first appearance in the late 1960s.

Planning of houses became more attuned to the location and site aspect. Consideration was given to the sun, on-site parking became standard and views were a consideration to room placement. Some thought to interior flow became evident; the toilet was moved from the laundry / back door, and was re-located against, or within the bathroom; the houses lost the narrow corridor that provided linkage with the rooms and open-plan began to feature.

The exposed timber floor and walls, usually stained a dark brown, were replaced by linoleum over the floors in the kitchen, toilet and bathroom, and the walls were papered. Split level and angled houses, with mono-pitch rooves made an appearance and eventually became more common-place later in the 60s.

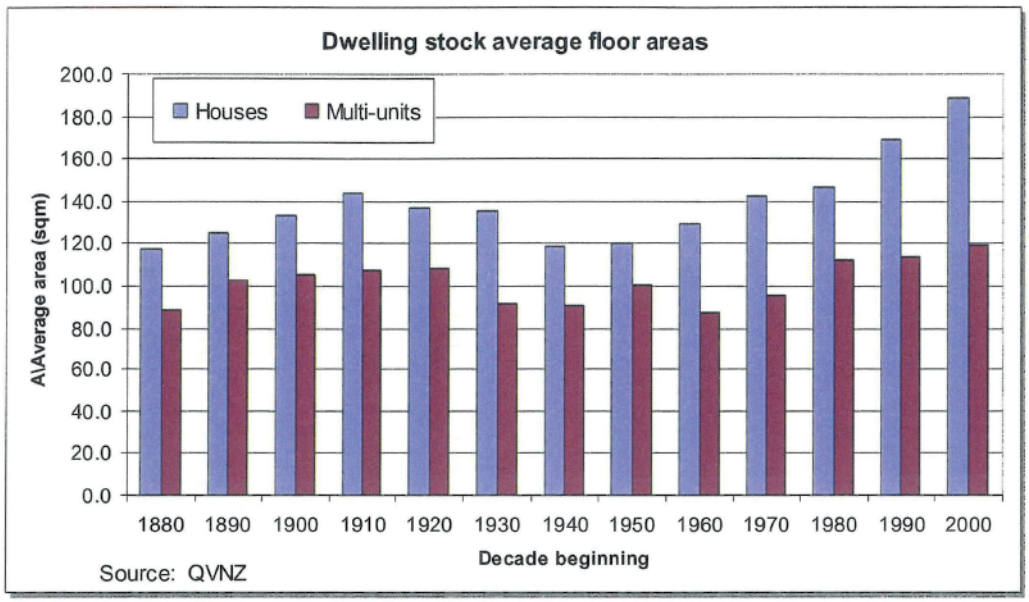
In the 1970s architecture became more adventurous and costly. The floor areas significantly increased and so did the enclosed volume, achieved by lifting or discarding flat ceilings. The house catered for the myriad of specialised kitchen appliances and also recognised the increasing domestication and socialisation of the family, hence lounges became appreciably larger. Aluminium joinery and sliding 'ranch-sliders' became standard. The exterior design changed also as more generous budgets provided the wherewithal for more frequent use of steel or concrete for the structure which 'allowed the use of expansive windows, transparent walls and balconies, recesses and projections to provide an ability to connect indoor and outdoor occupation' (ibid, 2000)

While the economic boom years of the 1980s allowed architects the freedom to experiment with an array of hitherto unconceived of residential architectural styles at the upper end of the housing market, at the 'domestic end' housing companies promoted a wide variety of essentially pre-designed and pre-fabricated homes that seldom departed from the bungalow in intent. Most houses still favoured timber construction, aluminium joinery, and corrugated mild-steel roofing, albeit with many profiles and coatings to provide an illusion of differentiation.

Into the new millennium, residential homes were trending toward a continuum of sameness, reminiscent of the "34 designs" first proposed one hundred years previously. Erected with haste, using cheap materials able to be used by unskilled labour, houses began to exhibit quality issues not seen by earlier generations of home-owners. Extraneous impedimenta appeared on many houses; grandiose entrance-ways, columns, and external lighting which focussed attention on, rather than from, the house. The house had arguably become closer to form than function.

Despite this, the internal services of the 2005 house have not advanced since the 1950s; gas, electricity, water and waste water remain the services of need (ibid, 2000)

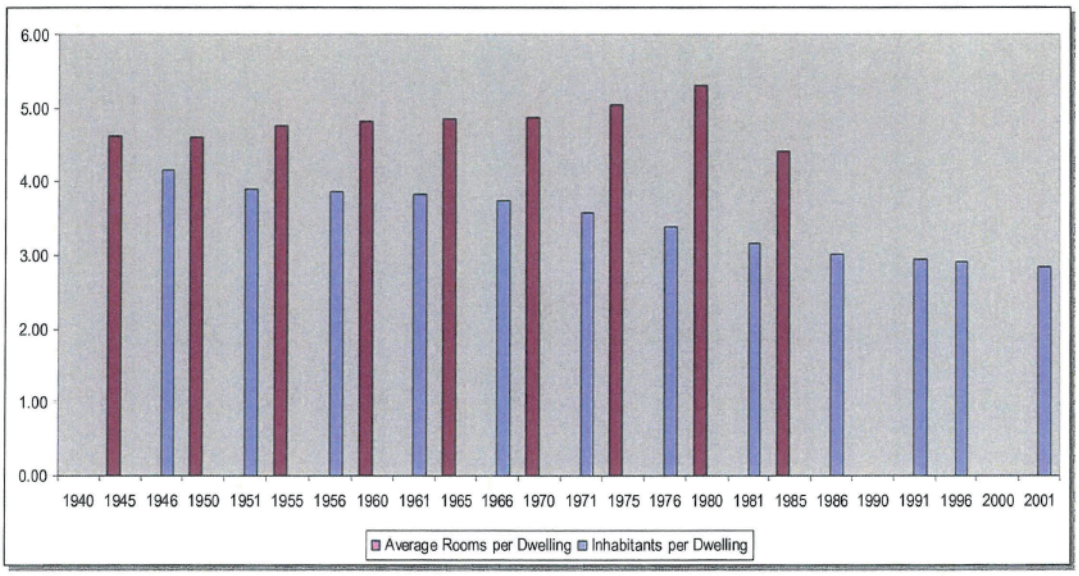
Other than design and material-in-use changes, the most noticeable departure since the 1950s has been the increased size of housing which, as graph (5) below demonstrates, has increased at every decade since 1950. The size of an average house, now at 189m^2, is 57% larger than its counterpart in 1950 (120.2m^2).



Graph (5), Source: BRANZ (2007)

Coupled to the size, the average house has seen changes to its internal spaces to meet the changing needs of inhabitants. For instance, the average number of rooms per house has increased every decade until the 1980s – see graph (6), over page. Although apparently marginal, it must be remembered that the average is being affected only by the introduction of new stock and the demise of the old, therefore many houses built in the late 1970s and early 80s had considerably more rooms than those of decades past. From 1980 a steep drop in the number of rooms per house occurred. Although data is not held beyond the 80s to determine whether this drop continued, there are two conjectures as to the reason.

The first is that the design criteria of housing and the methodology of room counting coincided, *vis a vis* the design of the more open plan house with its areas of multiple use, contrived to remove the delineation between and therefore numbers of individual rooms. Secondly, as housing increased in density (*see comment in Part One*) through planning changes, the design response, which was essentially to meet a mass production requirement of cheap housing, was to reduce the number of rooms. Firstly to keep costs down, but also due to the size constraints of each site and the imposition this manifests on interior design.



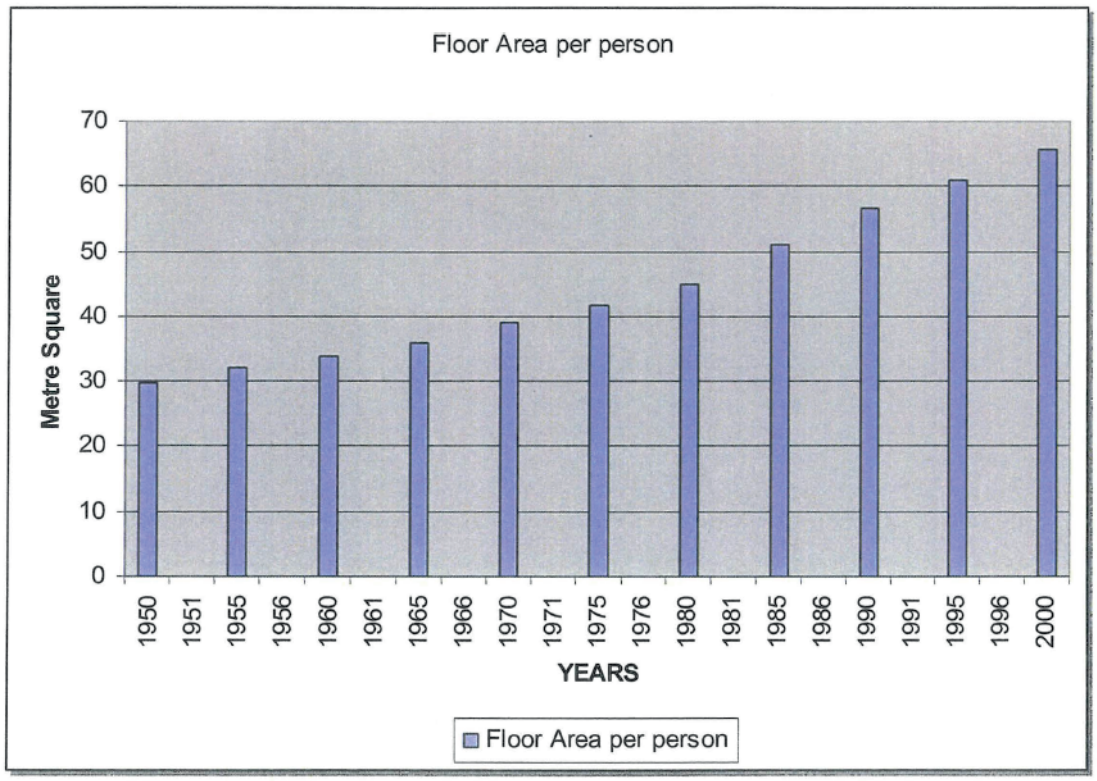
Graph (6), Source: Statistics NZ, (2001)

The second element from this graph is the number of persons occupying the average house. This reducing trend, while showing subtle changes in the rate of reduction, has nevertheless continued to drop for over fifty years. In 2005 the number of occupants is 2.84, which is a decrease of 1.07 persons since 1950.

Interestingly the ratio of inhabitants to rooms has changed from ~0.9 persons per room to ~0.7, with persons per *bed*room dropping from 1.8 persons to less than 1.0 (Eves, 2007).

Taken with the increase in house size, this means that, not only have more rooms per person become a feature, the average occupied space has also become larger. For example, in 1950 a person would enjoy the use of 28.9m^2 in their house, whereas in 2000 this 'personal space' had increased to 65.7m^2, a 120% increase; see following graph (7).

To put this into perspective, 65.7m^2 represents over half the size of an average 1950s house and, if houses were built on this *per person* rate in the 1950s, the house would be 262m^2 (*4.03 persons x 65.7= 262m^2*).



Graph (7), Source: Statistics NZ (2001)

Summary – Part Three

Median house price rises on the North Shore have demonstrated a consistent rise pattern since the 1950s. It is clear that the rate of advancement has increased significantly since the 1980s and that this rise has, with only short pauses, only increased over the latter period.

Mortgage interest rates have not shown the same consistent rise, although from the 1950s to the mid 1980s borrowers could be forgiven if they thought otherwise. From the late 1980s interest rates dropped significantly, but they remained well above the 1960s levels.

The transition from the 1950s house to that of one in 2005, has seen houses become larger, have more rooms, take up a larger percentage of the plot (which has become progressively smaller), and made of materials that are pre-constructed by specialist factories but able to be used by non-specialists on site.

Care is needed when discussing the appointment of a house and its design. For the purposes of this paper the argument will be that there has been little by way of change in the 'appointment' of houses. Conversely there has been some marked design changes to houses, but these are largely at the upper end of house design, construction and cost. The median house continues to be of simple design, admittedly using modern materials, but the essential elements have not altered since the 1950s.

The defining changes in the absolute sense of housing (as opposed to goods that can be retro-fitted by occupiers to improve the functionality) has been in overall size and volume, number of rooms and the number of occupants that are housed within.

With personal space in contemporary houses exceeding half a 1950s house, clearly personal expectation and its social manifestation have changed irrevocably within the last 50 years.

PART FOUR – THE SYNTHETIC COHORT

"We are Family[13]*"*

INTRODUCTION

To adequately represent the mechanisms by which families with at least one adult serving in the Navy saved for, purchased and serviced the cost of a median house on the North Shore of Auckland, it has been necessary to use proxies in lieu of gathering sufficient ex- and serving-men and women for a quantitative process of research and discovery.

Scobie and Gibson, in their 2003 NZ Treasury report on Cohort Saving Behaviour used a technique for proxy design which was referred to as synthetic panels (population groups). Scobie (after Deaton, 1997) proposed to establish these panels, whose membership is fixed, and track their average behaviour over time. As long as the panel sample is continually representative of the population, estimates from the data should be consistent with estimates from genuine data on individuals.

For this research the need was to consider and decide on a fair representation of household / family types that could mirror those that exist today, but equally importantly, were of types that existed across the 50 year time series.

A household may be considered as either one person who usually resides alone or two or more persons who usually reside together and share facilities (such as eating facilities, cooking facilities, bathroom and toilet facilities, a living area) (Statistics New Zealand, 1995, cited by Morrison, etal 2001). While the adults are related by marriage or kinship in most households, some households can contain unrelated people, and can contain more than one family.

[13] "We Are Family", a song written by Bernard Rodgers & Nile Rodgers and performed by 'Sister Sledge' (1979)

Households are therefore conceptually quite different from families; particular types of which are the basis of this research. The family is defined in terms of the household as, "a couple, with or without child(ren), or one parent and their child(ren), all of whom have usual residence together in the same household" (Statistics New Zealand, 2006). The former provides information on the different family structures, and the latter gives their normal living arrangements (Jackson, etal, 1996).

Compositionally the family unit has changed since the 1950s and four central features of this change are common in New Zealand:

- an increase in the instability of partnerships.
- a decline in the rate of marriage.
- a weakening in the link between marriage and childbearing.
- a fundamental change in women's economic role in the family.

(Hughes, 2004)

This has lead to an increase in the various definitions of 'family' by census NZ in its triennial snapshot of NZ and her inhabitants (Census NZ, 1995). This study therefore has to recognise and confine itself to the analysis of certain types of family within households, the makeup of which will remain constant throughout the period measured, irrespective of the composition changes to the wider NZ family unit. This will mean that families that do not fit the framework will be excluded and, in doing so, the conclusions of this research will only apply in the manner and degree, to those family units chosen[14].

In choosing the makeup of subject families it was recognised that, for example, it would be unlikely that significant numbers of defacto (same, or opposite sex) relationships would have been condoned by the Navy within the 1950-1960s. For this reason some subjectivity has been used to choose the family construct that can be maintained throughout the 50 year period.

[14] Care should be taken therefore not to layer the information over other family or household compositions.

An additional consideration, central to the issue of compilation of the family types, is the robustness of data, its collection technique, and consequently its accuracy and relevance.

It has been noted that in the case of family units, much of the analysis will be limited by data that tends to be too broad - at a population or national level - too small - at an individual level - or is a proxy, such as a household (Hughes, 2004). This research methodology therefore proposes an alignment that will be limited to four family units that could reasonably be assumed that have lasted as 'frequent choices' and that can be compared through the data held, measured and reported by various agencies, including Census NZ and Statistics NZ, throughout the period.

It is for these reasons that this research will centre on the following four family units:

- Single adult
- Couple, nil children
- Couple, with less than three dependents
- Couple, more than two dependents.

Each family unit can be expected to remain in sufficient numbers so as to be a viable percentage of total family sets and as such, will provide to this research the required stability throughout the period in review.

The family units chosen form the basis for the collection of all subsequent data and the assumptions made on that data, whether it be from the public domain or from within the Navy's own records. Despite the social reflection in Part Two, this section of the research will concern itself less with the family's development and more about their financial wellbeing.

For each family unit, the assumption is that only one adult serves with the Navy. The treatment of the variables that fall beyond this generalisation are discussed elsewhere in this document.

A Proxy for the Military Service-Person

To obtain a satisfactory result from the question 'what service person / rank type to use?', this research is required to deduce from the available rank types which should be chosen for study, and why. Similar to the consideration given to the family unit above, the choice of particular ranks to use for this purpose must fairly cover the seniority range within which it would be probable that a service person could reasonably consider the opportunities of private house purchase.

It would be reasonable therefore to suggest that in ordinary circumstances, a service person in training or very soon thereafter, would not normally contemplate the purchase of a house, mainly as relatively few young people form any type of independent family or household unit (Jackson, 1996) and normally, a young adult leaving home has relatively low income and little or no capital (Grimes, 2006)

For the same reasons, but from the opposite end of the scale, the ranks associated with the upper bounds of a service career – WOs for ratings, and Captains and above for officers – would be of an age where the opportunities and decisions necessary to save, purchase and maintain a house, would have been made (Skinner, 2003). As this research is firstly considering *whether* a service person (and their household) could save for, purchase, and maintain the costs of a house at different time periods, the focus is on those personnel at which age and social expectation would have them consider this process. The question then should not in the first instant look at the military side of the equation, but at the age at which a decision on house purchase may be contemplated, irrespective of one's career. The answer will then be correlated to rank and salary and the logic of the answer tested.

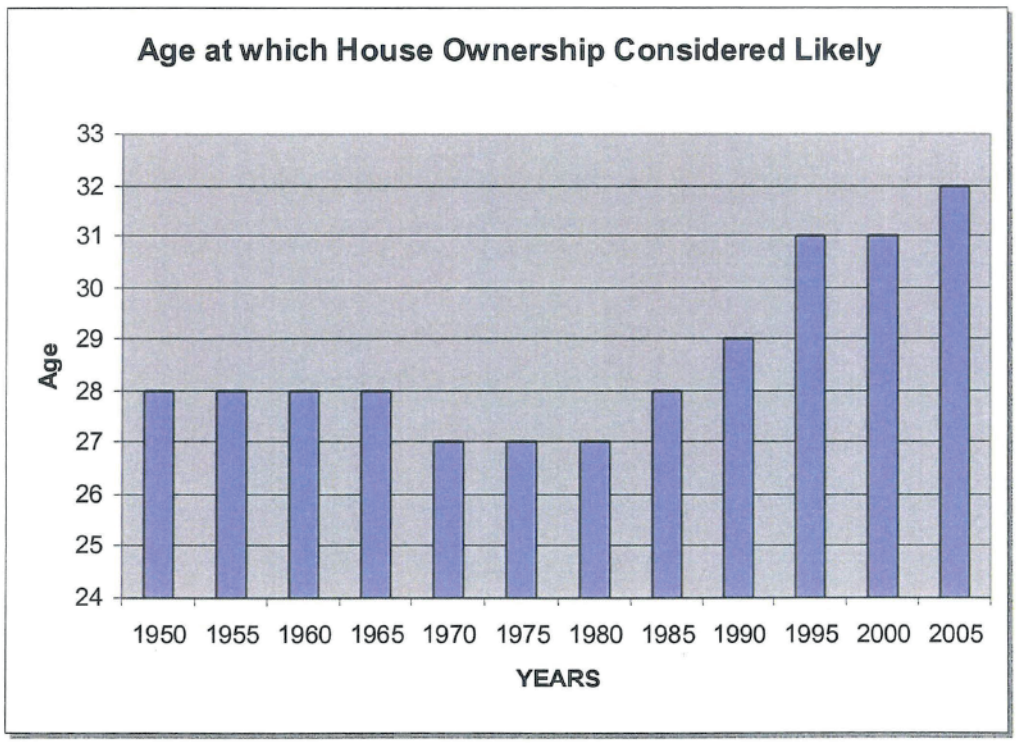
From the study undertaken in Part Two, it would be useful if one could infer an age per decade where owning a house would be considered desirable. Unfortunately no literature was found that would connect this age across the time-series. Therefore this research has taken it to be on or about the time of the arrival of the second child[15].

[15] In the case of the 'couple' or 'single person' family, the timing remains consistent and will be predicated on social expectation of one's peers.

With no research to support this premise, the consideration behind the logic is nevertheless that a family would exhibit a natural inclination to 'nest' at or around this time and this demand would be acted upon by families by the overt intent to purchase their own home. Some work has been performed on the age that this occurs.

As data is held describing the age of first unions, and the age at which a mother has her first child, an assumption can be made at which point she is likely to have had her second child.

By this mechanism the ages at which a family may consider the purchase of their first house is suggested by the following graph (8):

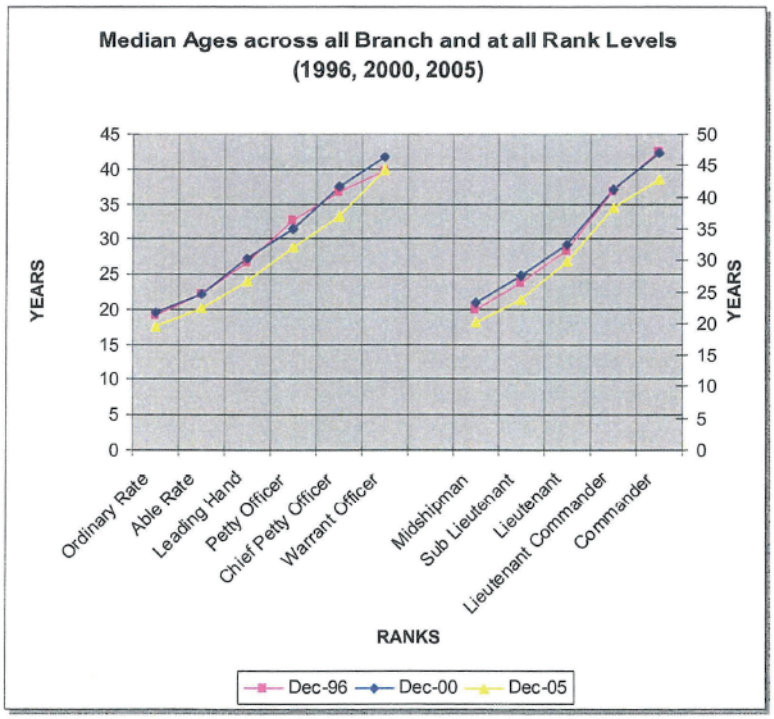


Graph (8), Source: Statistics NZ, Census NZ

The premise is also that saving for the house would have occurred previous to the year suggested, at some rate sufficient to complete the transaction *at* this age.

This data will then feed back into the military considerations, irrespective of whether the service person were male or female[16], as the data held for first marriages (from which the consequence and rate of births is calculated – see Graph (1), Pg. 35) is the average age of the couple. As unlikely as this would be in reality, as the spread of the male and female age of first marriage is not more than two years across the period, the data held has been streamed to record the average age at first union (being the mid point of the male and female median ages). The rationale is that in the discussion beyond the age of the first birth and the women's propensity to work during marriage, the remainder of the research is gender neutral e.g. there is no differentiation between the sexes with respect to salary earned from service in the Navy. Therefore, to record and consider each age variable would result in a complication unwarranted by the likely benefit of that effort.

From Navy records, it has been possible to extract the median age of the personnel, serving at each of the relevant rank levels, Graph (9). Note that these ages are independent of branch type.



Graph (9),
Source: Baddock, 2007

[16] Note that the graph relates to an equation based on the female's propensity to have children and the rate at which she conceives her second child, hence the comment regarding male or female service personnel.

There is consistency in the rate of change between each rank level, although there is some inter-year separation especially noticeable in the 2005 data, compared to the mirror of 1996 and 2000. Although it is suggested in the graph, due to the dearth of data pre-1996 it is not possible to confirm that the age of rank attainment was higher, or lower, at any time in the past.

Lacking any data to the contrary however, this age / rank information will be used with graph (8) 'age at which house ownership considered likely' (Pg. 62), to form conclusions on the probable 'rank at which house ownership considered likely' at specific years over the period.

Officers and Sailors

Although it may be useful to include a probability decision on whether to randomly pick either officers or ratings to investigate, based on the ratio of each in the Navy at points in time, this delineation is considered irrelevant as this paper is not investigating whether a sector specific division has existed. Therefore, this study has included equal representation from both sectors within each branch type.

Military Income

There is a not unreasonable presumption that a person serving in the Navy is recompensed for their service and that this will be an adequate and equitable salary, reflecting 'fair value' when compared to external employment conditions. It has always been so[17].

Navy salaries are not uniform across the service. Variables accrue through a variety of factors. These relate to a person's branch i.e. the person's specialisation, as well as their rank, and the length of inter-rank service, or seniority.

[17] This is because as service-person is not under an employment contract. A member of the armed forces agrees to serve under the oath of allegiance and, by so placing themselves under the oath, expects to be fairly recompensed by the Chief of Defence Force for their labours.

There are a number of branches in the current Navy. Each branch fulfils a particular specialist service on board ship. A person starting their service in one branch does so with the full knowledge that s/he is likely to remain in that branch for their career. Within each branch, the rank structure reflects experience and command / leadership responsibilities expected to be exhibited at each rank level.

The length of service within a rank level is recognised through salary movement. Therefore a service person's salary is built from their branch type, their rank, and the length of time at that rank; their seniority.

It is worth noting that as the proxies used for serving personnel would ordinarily have remained within a branch structure throughout their career, stability is provided for this research when following salary movements throughout the period.

Branch

When deciding on what type of personnel to follow advice was sought from the New Zealand Defence Force (NZDF) (Pepperell, 2007).

In the late 1980's and early 1990's the NZDF was subjected to a number of rationalisation reviews which resulted in the demise of some redundant (in the face of technology) branch specialisations. Therefore the first criteria was that the branch had to have remained in existence from the 1950s until 2005. The next criteria was the branch specialisations.

Some are considered shore support, while others are predominantly sea-going (operational). Some straddle both i.e. perform shore roles in equal measure to the time spent at sea. Care was taken to choose a range of branches that fairly reflect the breadth of the Navy.

After discussion, the following choices were made:

- Supply / Stores Assistant (SUPPLY) – this covers cooks, stewards, accountants and logisticians and attracts service personnel with skills in service delivery. Personnel support shore based activities, and are deployable in an operational context.
- Marine Engineering (MARENG) – these personnel are largely operational – keeping the mechanics of the ship in order – but they have a shore based role in the maintenance and upgrades of ships.
- Seaman (SEAMAN) – personnel are wholly operational and range from general deck hands through to navigators and 'ship drivers'.

Each of these branches have existed, more or less intact, since the Navy was formed, and certainly since the 1950s.

Rank

One joins the Navy as a rating or as an officer. As a rating, the lowest rank is Ordinary Rate and the highest a Warrant Officer. As an officer, the range is Midshipman through to Admiral (see Appendix C, Pg. 131 for rank structure and abbreviations). For either the rating or the officer the attainment of the next rank is by merit.

A service person with the right skills and aptitude, has reason to believe that s/he will rise through the ranks more or less with their peers. Within each branch this rise can be quantified (within bounds) with some certainty, although each branch exhibits its own nuance with respect to this rise i.e. there is some variation in the 'speed' of rank attainment between branches.

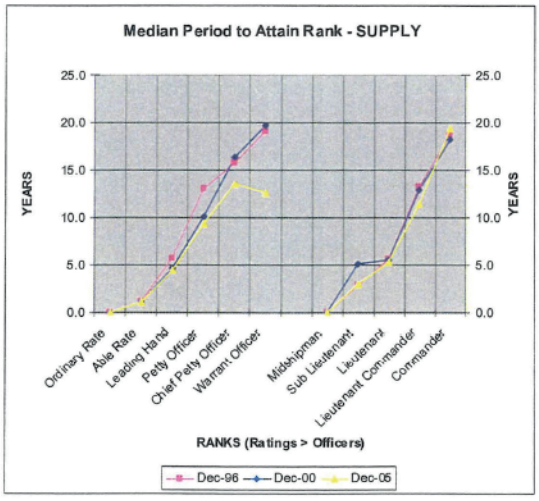
All things being equal therefore, the determination of the speed at which personnel travel through the rank structure determines the salary received by that person, *ipso facto* the probable salary that any particular person will receive at any time after their start with the Navy, can be predicted.

To determine the 'promotional speed' of personnel, personnel data regarding entry date, age at entry, age at each subsequent promotion, and branch is required (all of which ultimately impacts on the salary). Unfortunately, the data that would allow this analysis from 1950 is not available. What has been made available is eleven years of data collected annually since 1996 through to 2006, and lacking any longer time-series, this period has been investigated using the three years – 1996, 2000, and 2005 – that are closest to the later inter years of this research: 1995, 2000, and 2005.

The data provided (Baddock, 2007) covered all personnel serving in these years. From this data, the following elements were extracted: Branch, Rank, Date of Birth, Sex, Marital Status, Enlistment Date, and Rank Seniority[18]. Then the three branch streams were isolated and from these the individual ranks. The medians for promotion time to each rank and the age of personnel at each rank where extracted from this series against each of the three years. The results of this analysis are shown below and overleaf.

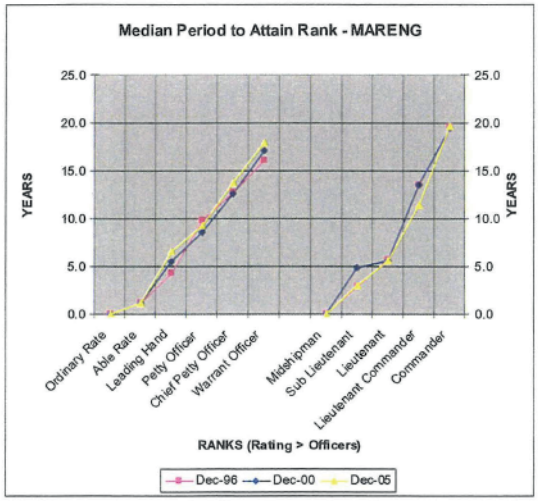
As could be expected there are a few differences over the nine year spread of data. For instance – Graphs (10), (11) and (12):

Graph (10)



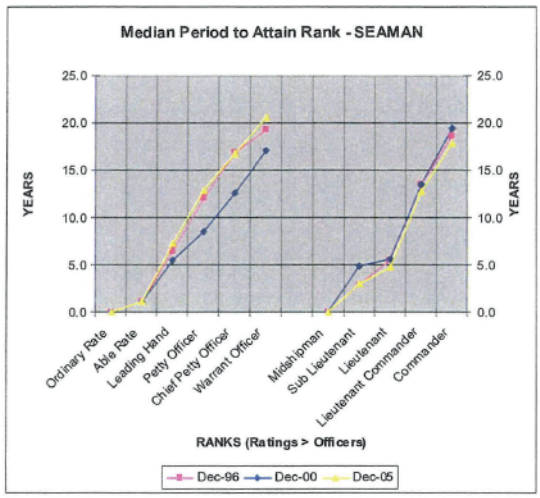
Supply: The data remained generally stable across the rank and year spread, excepting the noticeable reduction in age of attainment at the CPO and WO in the 2005 data. Analysis shows that the number of CPO and WOs for this year was relatively the same as in previous years, however, anecdotal evidence suggests that a determined move of early promotions to fill vacant positions may have been the cause.

[18] Ordinarily the date on which the promotion took place. However, there were a few inconsistencies where the promotion was 'back-dated', meaning the person had received meritorious benefit, recognized in additional seniority. These outliers were removed from the data analysis as the 'average' service-person was what was required.



Marine Engineering: The data shows a remarkable consistency across the nine year period, with only a slight deviation at the Sub Lieutenant level in 2000 amounting to a delay of two years that is not repeated in 2005.

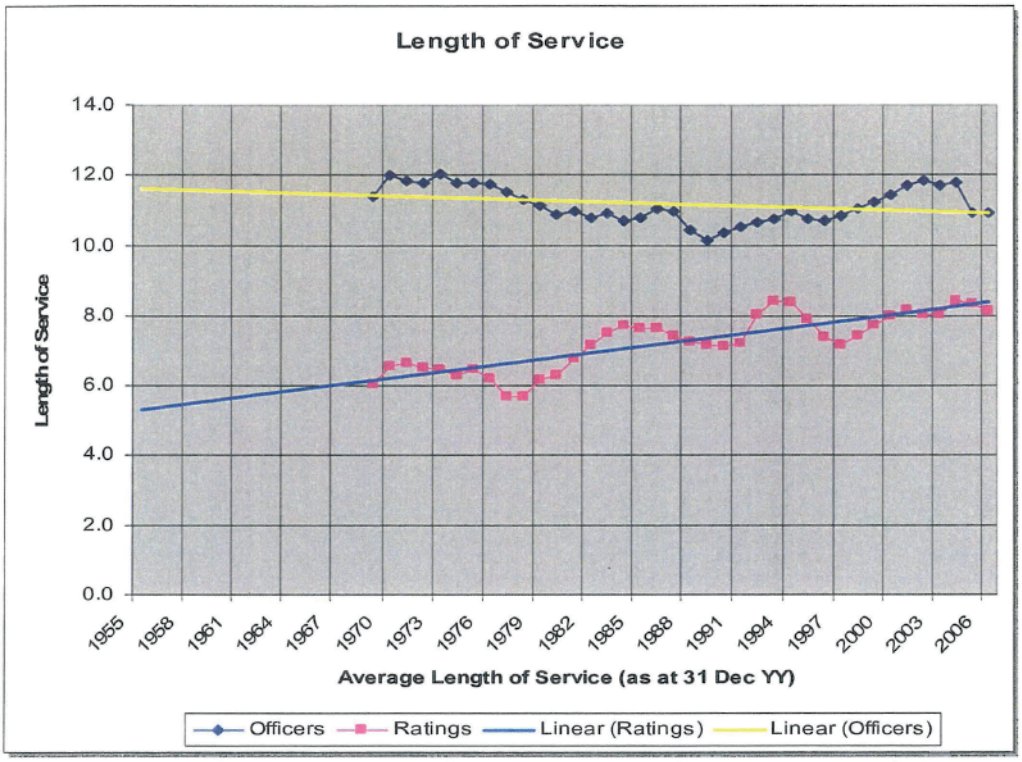
Graph (11)



Seaman: The greatest variation occurred during the 2000 year when a significantly younger age bracket appear to have been promoted at the mid leadership level (Petty Officer) and further up the ranks. However, other than this variance, the 2005 pattern mirrors that of the 1996 graph.

Graph (12)

Noting that the above information is relatively short, and defines the latter period of research, discussion took place on how to determine confidence that the 1996-2005 inter-rank information could be usefully employed against the earlier period (1955-1995). Given that time in the service is required to ensure success in progressing through it, and by this measure stability of tenure should indicate stability of progress, data was found that provided the length of service for all personnel from the late 1960s. This information is graphed as follows:



Graph (13), Source: Baddock, 2007

It can be seen that the length of service for officers for the past forty years has trended gently downward, that the trend has remained within a two year spread, with a 'long run' linear spread of one year (yellow trend line).

More problematic is the range of service for ratings, as this shows a more pronounced variance; for 24% of the time, the length of service for ratings has fallen outside a two year variance spread. The linear blue trend-line has been extended back to 1955 and this exits the lower boundary (6 years) and approaches the 5 year mark by 1955. This gives a potential spread across the time-series, of 3.25 years.

The issue with the ratings trend line is *prima facie* it may indicate that ratings did not serve a sufficiently long period of service within which to consider and action a decision to acquire their own house, although the data points to the lesser period of service (6-7 years) as being isolated to the 1969-1982 period. Post 1982 this period had increased to, and remained at or around 7-8 years.

The data does however, generally equate with the conditions of service prior to 1960 when the Navy's 'first time engagement' was for eight years, whereas post 1960 it has been 20 years, open-ended (Griffin, 1994).

What is not clear from these graphs is the effect, if any, of the residual scaling down of the war-time service population and the rise and fall of Compulsory Military Training (ended in 1973). The latter may be distorting some of the early data as it resulted in a 'rapid turn-over of young unmarried men' (ibid, 1994).

The purpose of the length of service graph however, is to determine the stability of the cohort's propensity to remain within the service, as this is anecdotally considered to be a good indicator of the likelihood that the data regarding promotion is also stable (given that one must be in the service to be promoted), especially if the period 1996-2005 is similar to the period preceding.

Given that the linear variances are within a one and three year spread across 37 years, the use of the information regarding rank progression has been taken as reasonably indicative of the research period, although the use of the rating trend-line will be used with some reservation.

Seniority

While branch and rank lies at the foundation of salary for the service person, the final arbiter of salary at any point in time, is length of time within each rank - the seniority.

The Navy recognises that the longer a person works within a rank level, the more useful and beneficial s/he is to the organisation. For this reason a service person receives recognition for their seniority within rank and a salary adjustment is made every two years from the date at which they attained that rank. Therefore a Petty Officer with two years seniority is more senior in rank, and receives a higher salary, to a Petty Officer that has recently had an appointment to that rank, even though they are wearing the same insignia.

As the previous graphs demonstrate, the inter-rank period is known and therefore information will be available on the number of seniority adjustments within each rank.

This information will be applied into the salary adjustment to the personnel proxies as they are 'promoted' through the ranks and their salary apportioned accordingly.

Income

Having discussed and compared the events that conspire to build a salary level, attention must turn to the salaries that would be applicable to each of the branches, across the time period.

The NZDF archives has revealed the range of salaries that have been paid to service personnel from 1971. Prior to this date some extrapolation has been necessary, based on the Wage and Salary index from Statistics NZ, to appreciate the level of incomes from 1955 to 1970. While this will normalise the salary of these years to some degree, the use of the index has been unavoidable if the paper is to infer relativity from 1955 (note that the extrapolation is necessary for the years 1955, 1960, 1965 and 1970, as only every fifth year is under review).

The data is relevant to each of the personnel proxies in each of the branches and to officer and rating alike. The data is tabulated at Appendix D, Pg. 132-134.

Summary – Part Four

It was indicated at Part Two that the unalterable assumption of this research was that there would be one adult member of the household serving with the Navy. Service with the Navy obviously comes at a price and in recompense, the service person is rewarded with, *inter alia*, a salary.

That salary is granted for specific skill sets held by the person and the rank and seniority within the branch they serve. The branch type, ranks and seniority have been discussed and the relevant data made visible in the preceding pages.

From this data, a complete picture can be built of the likelihood that a particular person, joining at a particular age, will have attained certain rank levels within particular times. This information will point toward the probable salary awarded to the service person at any time during their service career and from this, at least against the serving member, an income stream into the household can be assumed over the service life of a rating or officer joining one of the branches above, at any time from 1955.

PART FIVE – DATA ANALYSIS

"(What's the Story) Morning Glory?[19]"

INTRODUCTION

The process of the paper thus far has been to acquaint the reader with the social conditions that have existed at certain periods since the 1950s and up to 2005. The paper has also introduced four potential families that would have existed in each of the periods, and has demonstrated that if one of the family members also served with the Navy, their salary and potentially that of the household, would also be a known quantity.

What is now required is to connect the financial data to the family compositions that have been decided. The results will then be held against the light of the social norms and expectations of each period, to view the results through the realism of the day, and not through the tinted glasses of contemporary life that so often colours analysis of historic data.

Analysis Expectations

Having undertaken a number of smaller studies on the issue of housing affordability the writer holds a reasonable understanding of the issues that often exist with prospective home owners, and the difficulties they experience to reach the hurdle rate of home ownership. However, all of these studies to date have been limited to the latter decade when, as the introduction states "*..the question, discussion and definition of housing affordability ... reached a crescendo in the popular media..*" and to which, this writer was not immune. Having a base understanding of the latter period does not however equate with an equal understanding of any previous period.

[19] Second album from Oasis, a UK rock band, released in October 1995,

Without an alternative process, understanding affordability beyond the last two decades has required investigators to accept that a series of unrelated and often disjointed 'affordability' indices adequately describe this history. As discussed in Part One, the very real limits to this approach demands that a more intelligent technique be employed, to fully reveal the human face to what has hitherto been a sterile and largely superficial connection and publication of bland figures.

In comparison, the ability to secure sufficient breadth and depth of raw data should provide an insight into the 'life' of discrete families. This may reveal how circumstance and situation conspired within each of their households and how this may have affected their housing decisions. Whether current families will find sympathy with previous families and their decisions with respect to home-ownership, has yet to be seen.

However, in contrast to an index, this technique offers to the contemporary reader four family structures that *could have* existed and, if the reader recognises some components within the households that they are part of, perhaps this can provide some relativity and balance to their efforts to achieve house ownership.

However, based on the hypothesis of the paper, the contention remains, and the results should bear out, that Navy servicemen and women have always faced the inability to afford the median house on the North Shore of Auckland, irrespective of the period in which this quest is carried out, and have had to contend with making negative choices with respect to their housing and subsequent life-style as a result of this inability.

The success of the data analysis will therefore be to provide sufficient insight into the life-cycle of these families – from a time of pre-marriage, to a time when each determined whether or not it could afford to acquire and then service the cost of a median house – to prove or disprove the validity of this hypothesis.

Analysis Methodology

With the social study complete and the financial data collected, attention can now turn to the data analysis methodology. To begin, it is useful to observe the boundaries of the data sets collected and the limits to which this data will be subject to scrutiny as part of the analysis. These boundaries will be set as per the following résumé:

Time

- The date for each of the time series for each of the family proxies is at every inter-decade point from 1955 through 2005 inclusive, ending at 31 December in the final year e.g. 31 Dec 1955, 31 Dec 1960, etc.

Household Proxy

- The composition of households will only be one of the four previously isolated family proxies.
- Each of the family proxies will have a service-person working in each of the three Navy branches and each service person will be mirrored as a rating and an officer.

Marriage

- One half of any marriage union is a member of the Navy.
- The age of each person at the start of each marriage is deemed to be the mid point between the median age of marriage for both male and females at each time period i.e. the couple will be the same age.

Children

- The fertility rate of the females in the marriage union is deemed to be the statistical record.
- The periodicity of births[20] is assumed to be one per 18 months for each of the designated children after the first.

[20] All births are deemed to be live births.

Employment - Navy

The serving member:

- Began their employment at age 18 irrespective of whether they joined as an officer or rating.
- Was equally likely to join one of three branches: Supply, Marine Engineering, or Seaman.
- Was either an Ordinary Rate or a Midshipman within each branch on entry.
- The age for rank attainment are those medians recorded at 1996, 2000 and 2005, as per each of the branches, and these medians are held as applicable throughout the time-series.
- Was paid the base rate applicable to their rank and service, without additions for specialisation.

Employment - Women

- The employment participation rate for women is assumed to be the likelihood of a requirement / desire to work, rather than the statistical record[21].
- The women's income is based on the statistical propensity to work and the definition of that work e.g. full- or part-time, and therefore the statistical salary will be applied against each work type.

Tax

- Income tax is taken as applying across single incomes at a flat rate, based on the tax rate applicable at the time, as per graph (2) on Pg 43.

Disposable Income

- Disposable income across the households is based on known income from the Navy service person and statistical income from the non-serving partner (as appropriate), is net of taxation, and exclusive of Government assistance.

[21] To do otherwise presents another permutation into the already tree-like calculation.

Saving

- The rate of saving is based on the absolute difference between the known annual income and the statistical expenditure profile. The expenditure profile is manipulated to fairly reflect the household type, the number of persons of that household, whether the household was renting or had purchased a house. Both positive and negative savings are accrued forward into the next year.

Interest Rates

- Mortgage interest rates are a matter of record and are applied at the rate recorded at each time period; see graph (4), Pg 50.

Houses

- The decision with respect to geographic location of prospective houses, will be limited to that of the following suburbs: Devonport, Takapuna, East Coast Bays, Birkenhead and Northcote.
- House design descriptors are as per the general trend of house designs. A house purchase consideration will be for a house with the design features applicable at that time.
- Median house prices across the North Shore are a matter of record. The differential between various suburbs and the median of North Shore is used as calculated.
- Persons per dwelling are assumed to be as per the statistical record.
- Floor area per dwelling will be as applying at the time period.
- Rate of personal space will be a product of the two aforementioned records.

Changes to Record

Any changes to any of the records that are exhibited across the time series, are deemed to apply when they have been recorded as statistically evident.

Data Analysis - Commentary

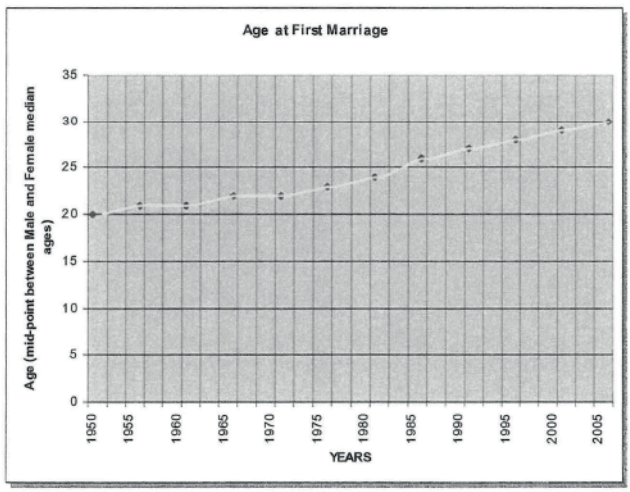
With reference to the data analysis, a prior commentary on each of the data sets is appropriate, see Appendix E, Pg. 135-137.

Column 1 – Years appropriate to this study.

Column 2 – Characteristic/composition of the proxy household.

Column 3 – Statement of likelihood of being married. This has been defined as follows: single person = "No", never married. Remainder of household groups = "Yes", always married, as at the age provided for the union.

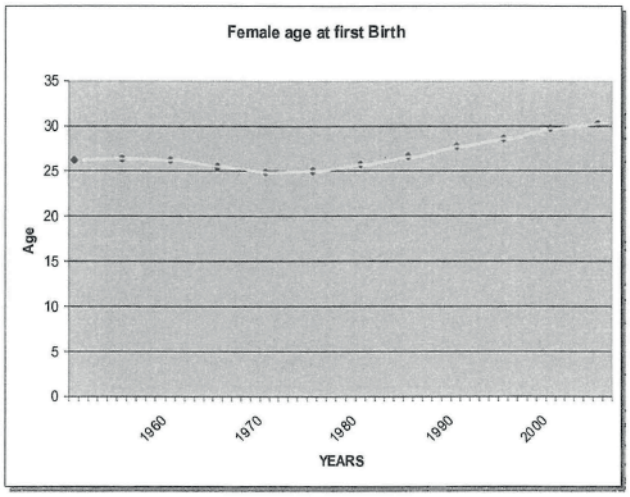
Column 4 – The average age of marriage is the mid-point between the statistical gender medians and applying a two year moving average trend line to provide intersections relative to known points[22]. As per graph (14) opposite.



Graph (14)

[22] As opposed to a linear trend line that does not provide the same 'fit' to this graph.

Column 5 – A female's age at first birth, is based on statistical record, and graphed (15) to the right.



Graph 15

Column 6 – The age at which the household completes is the age of female on the arrival of the last child.

Column 7 – The probability that the wife would be working. Up to 1960 the answer is "no" for each of the households. Post 1960 the answer is "yes" to the couple, remainder no. Thereafter the answer is gradually freed to "yes" across all households (excepting the single household), as financial demands, social acceptance and the innate greater need of the higher educated female, increases the propensity to return to the work-force.

Column 8 – The age at which the woman returns to the work-force is predicated on a time lag of two years post the definition of the 'age at which the household completes'.

Column 9 – The age at which house ownership considered likely. This age is based on the expressed *desire* to occupy a house and provides the time-frame for an expected savings requirement. The age is based on the age of the female at the birth of the second child. In the case of the single person and couple household, the consideration to purchase a house will be assumed to be when the households in their peer group do so. The timing is based on the social commentary in Part Two with the result demonstrated in Graph (8), Pg. 62.

Column 10 – The number of persons in the dwelling is based on table 2, Pg. 38. As this figure cannot be used equally across the proxy families, the figure has been taken to be equal to the "Couple < 3 children" family with the figure adjusted to account for more or less dependants / partners in the remaining family types.

Column 11 –

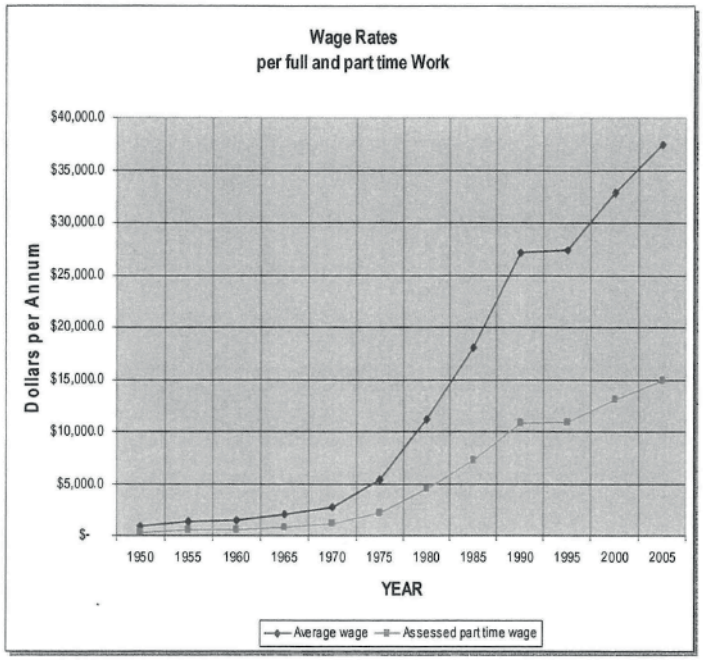
a) The average weekly wage for a full-time worker. The figures used have been drawn from the New Zealand Year book for the early data (1950-1985) and Statistics NZ for later data. A gender neutral application has had to be made due to the inconsistent measurement of this data across the time series [this is contrary to the proposal which was to make the data reflect a male worker until 1975, however, this has not proved possible without increasing data uncertainty].

b) The annualised wage rates for a full time worker is a product of the weekly wage rates using a 52 [week] multiplier.

c) The annualised wage rates for a part-time worker. An across-the-board assessment of 40% of the full-time wage has been used to differentiate the salary of a part-time worker. This has been necessary due also to the inconsistent data presentation.

d) The annual median wage rates for males from Rankin (1991).

e) The annual median wage rates for females, from Rankin (1991).



Graph 16

The graph (16) to the right demonstrates the *average annual* wage for full- and part-time workers.

Column 12 – The notation of the earnings by each of the service personnel are included as a reference only. The earning life-cycle relationship of each of the service personnel types, and the households to which 'they belong', is managed on a separate worksheet, see Appendix F, Pg. 139-144.

Column 13 – The average tax rate applicable across wage earner's salaries, as per graph (2), Pg. 43.

Column 14 – The Consumer Price Index for the period 1950-2005. While the use of indices has been an anathema to the structure of this paper, due to the dearth of information on the expenditure profiles of households, and the inconsistent measurement, record and accessibility of the data that does exist, the use of the CPI has become necessary. It is recorded that the use of this index applies only to bridge gaps within the household expenditure time series (*see following*).

Column 15 – Weekly and annual household expenditure figures for the period 1975-2000 have been collated from official sources. However, prior to 1975 and post 2000, the collation, record and sequence of this data type presents too great an error source due to inconsistency of measurement and presentation. Consequently, for those years that data could not be reliably sourced, the CPI index has been used to adjust consumption for each of the household types.

Data Analysis – Objective Tests

The age of employment, speed of promotion, and salary data at each of the rank levels, are all known. The income for each of the serving personnel proxies and their partners, if any, are known, as are the expenditure profiles of each of the household groups to which they have been assigned. The median prices of houses on the North Shore are known and these are recorded at Appendix B, Pg. 128-130.

A process of connecting intermediate income levels for each of the participants and their partners, along with the changes afflicting the individual families by and as a natural result of any union in regard to marriage and children, has been made. An example of the process is demonstrated at Appendix F, Pg. 139-144. Note that the military proxy income has been drawn from the *after tax* information contained within Appendix D, Pg. 132-134.

It will be noted at this juncture that, although the data for each of the inter-decade periods has been recorded, only three selected years have been used to provide the necessary comparisons so as to reduce the data lines to a manageable level[23]. The years chosen are 1955, 1975 and 1990 to provide a reasonable spread of years, although the 1990 data is limited to 15 years as 2005 represents the limit of this data collection. The results are provided in table form at Appendix G, Pg. 145-147, and these should be referred to when reviewing the objective tests that follow.

[23] Given that there are 4x households, 3x branches, 2x employment characteristics and 11x years, this represented a potential 264 lines of data, for each of the eight functional tests.

Objective Test One

Could the household have accrued sufficient savings with which to make a deposit on a house to the value of the median North Shore house price, by the year at which it has been determined that such a consideration would likely to have been made?

Result – Appendix G, Pg. 146

The results are predicated solely on whether a deposit could have been saved at the time of the proposed house purchase. For this, all saving, both positive and negative, has been calculated and accrued forward to determine a result.

Based on the above, it is clear that in general, lower income levels are insufficient to retain sufficient reserves with which to accrue a house deposit. This is especially so for households where children are involved.

Interestingly the data in the 1975 period suggests that a window of opportunity existed whereby a greater range of households, including those with children, could have acquired sufficient reserves to form a deposit.

In the 1990 period, it again became more difficult to save, with the difficulties again focussed on the lower salaried households.

The success or otherwise of saving for a deposit appears to have remained relatively static throughout the 35 year spread and suggests that little if any relative movement has occurred between salary, expenditure and deposit ratios, at least, when tested against the North Shore median.

Objective Test Two

If there were no savings for the first three years of the service person's working life, would this affect the results?

Result – Appendix G, Pg. 146

There is an argument that for the first period of anyone's working life, the likelihood of any savings accruing is limited (Grimes, 2006). Given this, the first three years of each of the catagorised household saving streams were discounted to zero.

Interestingly, there were only minor changes to the ability of households compared to test one.

The change meant that for two lower salaried (Couple, MARENG, 1955 and Single, SEAMAN, 1975) and two higher MARENG salaried households (both with children in 1975), could not have raised a deposit, which indicates that the rate of saving and length of saving has a significant bearing on households with a marginal chance of acquiring a deposit, even if savings were being accrued.

The saving change also meant that a lower salaried household (Couple, SEAMAN, 1990s) could now save sufficiently, which suggests that the 'zero saving' removed significant accrued *negative* savings, thereby bringing forward the time when a deposit could be reached.

This also suggests that such households would have had to make negative life-style choices during those years, as it is unlikely that these households would have run an accrued negative balance across a long time series, and so would have spent less than the statistical average suggests.

Objective Test Three

If, therefore, it could be assumed that a household made negative choices with respect to lifestyle, and lived within the statistical expenditure profile i.e. zero balanced all negative saving, could a household save a deposit?

Result – Appendix G, Pg. 146

Despite removing all negative balances from all salary ranges (but leaving all positive balances), there is only one change to the propensity to save for, and thereby reach the deposit level within any of the three periods (MARENG, Single, 1990).

This suggests that it may be difficult to make a significant difference to the likelihood and degree of saving required for house purchase over a working life and a household that is struggling to save at the levels required, will likely always struggle to save, due to the incessant rise in house prices and therefore the deposits required.

This inability to save appears to hold true across the time series. Consequently, there appears to be some correlation between incomes and house prices.

Objective Test Four

If saving were restricted to the year of marriage forward, would this effect the likelihood of the household's ability to save sufficiently for a house deposit?

Result – Appendix G, Pg. 146

This test rests on a possibility that little to no saving accrues while there is no reason to do so, while a formal relationship appears as a catalyst to save.

The saving elements in the years leading up to the year of marriage were zero-rated. Again, there were only minor variations in the success to gain a deposit with only two changes amongst the 72 data sets (the negative changes where to the MARENG, 1990: low salary/Single and high salary/>3 Children, households)

This indicates that despite the commentary at Objective Test two, the reduced time to save has little apparent effect on the majority of households, and points toward the inclusion of a second income as being the predictor of and has the greatest effect on, the ability to save, with time of saving being of secondary importance.

Objective Test Five

If a house deposit could be raised, could a mortgage be sustained at the rates applicable at the time?

Result – Appendix G, Pg. 146

This test is a natural consequence of the first test, in that a forward looking assessment would have been made by each of the households to determine their ability to continue to service the cost of the resultant mortgage.

Note:

1.) An assumption is that the deposit threshold is 10% of the house price, irrespective of whether the savings at the time of the decision are in excess of that amount, i.e. if the savings would provide for a deposit greater than 10% of the house price, only 10% has been used.

2.) Supplementary income from working spouses has been treated according to social expectation: for 1955 no household has a supplementary income; by 1975 supplementary income was factored in for the Couple and <3 Children households, but not for the >2 Children household. By 1990, all households other than the Single household, have a supplementary income two years after the birth of the last child.

Result

Noting that the periods chosen straddle the highest mortgage rates, the results demonstrate that the mortgage interest rates still have a significant affect on the ability to maintain the tenure of choice. The results for 1955-1965 are little changed in comparison with test three, which is significantly different to the changes that are exhibited in 1975-1984 where the majority of the cohort strata are unable to maintain the cost of the median house. Things ease in 1990-2001 (along with the interest rates) and this allows a comparatively larger segment of the cohort to maintain a house.

However, this latter observation belies the fact that 54% of the cohort are unable to maintain the cost of a house, and this portion is made up solely from the lower salaried element.

Objective Test Six

How has the rank / age applicable at house attainment moved over the years?

Result

Despite the fact that the ability to save for and purchase a housing has been wavering over the test years, the age at which a house purchase could be considered has remained fairly static at 27, 28 and 29 years for the 1955, 1975 and 1990 input years, respectively.

Likewise the rank at which a house purchase would have been considered has also remained reasonably static (as age is one of the predictors of rank in the instance where the age at entry has remained constant for this paper).

Objective Test Seven

Where could each of the households afford to purchase their house?

Result – Appendix G, Pg. 147

One of the aims of the paper was to determine whether a household was restricted in its ability to choose where a house purchase could take place. The median house prices for the five suburbs are known and have been inserted into the sequence at Objective Test three which tests whether the household could raise a deposit after zero-balancing all negative savings.

The results are fairly consistent with the test against the North Shore median house price, with only minor variations appearing as the deposit/ saving levels approach equality (which allows the balance between having a deposit or not, to tip, should a suburb be slightly above or below the North Shore median).

In the main the available saving levels are shown to be significantly above or significantly below the requirement for a deposit, and if below, will never approach the levels required.

Objective Test Eight

Whether a lower salaried household could afford to purchase in the same locality in 1984 and 2001, as it could in 1965?

Result – Appendix G, Pg. 147

The test is predicated against one of the original questions raised in the study by Skinner (2003) which suggested that the ability to afford a house in any location has likely changed over the years, and if it had changed, anecdotally this would be further from the suburbs of Takapuna and Devonport where there has existed an area of 'high and middle social rank' which contrasts to the working class housing of the north western areas (Timms cited in Spoonly, 1994) – a process of exclusion using house price as a social barrier.

With two caveats this does not appear to have occurred in the time frame under study. The caveats are focussed on the lower salaries;

- Two thirds of low salaried single households had been excluded from each of the five suburbs by 2001, whereas each suburb was accessible in 1965 and 1984. The exclusion starts in 1984 for $^1/_3$ of the low salary households under study;

- All low salary households with dependants (and including Couple households in 1965) have been unable to acquire a median house in any of the suburbs listed, throughout the time period.

There is some wavering with respect to suburb access, especially in the 1965 and 1984 house price purchase years. This is attributed to the exclusion of a working partner coupled to increased consumption in the 1955-1965 period and a slight relative reduction in salary levels for the MARENG cohort in 1975-1984 period compared to the SUPPLY and SEAMAN cohort.

Results from Objective Tests

Reviewing the results across each of the saving / purchase years of 1955-1965, 1975-1984 and 1990-2005, an understanding can be gained of the ability for each household and cohort proxy combination to purchase a median priced house.

1955-1965 – Following the first column in each of the five objective tests, it can be seen that in only three cases (of 12) could a low salaried household acquire a median house (SUPPLY/ MARENG/ SEAMAN, Single household) when all the filters had been applied. Of the remaining low salaried households, none could proceed with a house purchase, although a MARENG, Couple would have saved a deposit by the required year.

1975-1984 – Turning to the second column. At the first objective test, there appeared to be a window of opportunity for many of the low salaried households, as there was an increase to six of the low salaried households that had accrued sufficient savings. By the second test, this window largely remained for the low salaried, but took out two higher salaried households (<3 and >2 Children) through removing any savings for the first three years. No changes were then recorded until the final 'mortgage service' of test five, when all low salaried households were excluded and only four higher salaried households were able to pursue a house purchase; none of these were households with dependents.

1990-2001 – Focussing on the last column. There was a remarkable sameness throughout the tests with all but one household type changing from 'yes' to 'no' by the end of the five filters (MARENG, Couple, Sailor). By the end of the tests all the low salaried households had been excluded from entering the housing market against the median house, while all but one of the higher salaried households were able to make a purchase.

When each of the household and service proxies are reviewed there is a noticeable worsening of ability to purchase at the lower salaried levels, albeit that the reduction takes place against a very low ability to start with. With respect to the higher salaries, there is a slight improvement from the 1955-1965 to 1990-2001 period.

Across the 1975-1984 period there are a number of instances where affordability worsened for all households. Unfortunately, they improved only for higher salaried households by 1990-2001.

The Housing Decision

The paper should not pass without some commentary on the situation a representative family of 1955-1965 found themselves in, when compared to the 'same' family some 35 years later – 1990-2001.

Looking at the Couple plus less than three children household:

1955

The couple met soon after the rating had joined the Navy and were married by their 21st birthday, three years after he had joined and by which time he was an Able Rate. They started saving toward a house almost immediately, although, with the wife not working save the odd community type jobs, saving proved difficult.

Within a year it was apparent that with the additional consumption of two people and despite having the security of a Navy house at better than market rental, they had to tighten their belts. This continued for five years when the first of two children were born, with the second arriving just under two years later. Given their situation and the fact that he would be a Petty Officer before the year was out, they decided to look at housing options and spent a weekend looking at newer houses for sale.

What they saw looked reminiscent of their parent's house – a ¼-acre section, largely devoid of plantings save the vegetable patch in the back and the shed, a single path to the front door. Some had the new concrete block wall someone had spoken about but this did not endear itself to the wife who preferred the more common weatherboard. Some of the houses seen had a garage, although it was unlikely that they would be putting a car in there for a while.

However, despite their need, they realised that they were unable to save sufficiently to acquire a deposit and so continued to occupy a Navy house.

1975

The couple met a few years after the rating had joined the Navy, but were not married until they were 23. By this stage, the rating had been promoted to Leading Hand. Neither of them had saved prior to getting married but now they saved whatever they could while they rented a Navy house.

This working and saving pattern lasted while they were a couple, and they even saved slightly with only one child but when the second arrived, four years after they were married, one income was insufficient for their needs. The wife had stopped work while the children were young but with extra mouths to feed and the pressure on the housing budget, she decided to take on part time work when the youngest child turned two. This reinvigorated their savings, which again began to grow, albeit slowly.

Given their family situation they decided to look at housing options and spent a weekend looking at newer houses for sale. What they saw they liked: the rooms were large and the ceilings high, gone were the maintenance hungry timber window joinery and in its place aluminium, along with a new fangled ranch-slider, leading to a patio no less. The windows were large and the interior quite light. The eldest child liked being able to wander outside easily and the wife liked being able to see her children playing outside, while she was in the house. The car could be parked under the house in the carport, and the whole house was situated on a sloping north-facing section.

When they got back they reviewed their savings. Despite being recently promoted to Petty Officer, they realised that they could not raise the 10% deposit required on the house and so resigned themselves to a few more years of renting.

1990

They met some eight years after the rating joined the Navy, but they were in no hurry to marry and delayed doing so until they were 27. As a Leading Hand the rating was making reasonable money for some time and if this had been saved, their married life may have included a freehold house. As it was, neither had saved prior to getting married, but with both working in full-time jobs they considered their saving record to be quite fast. For a year. Then, at 28, she fell pregnant with the first of two children, and so they managed on one income.

By the arrival of the second child, their savings would have entered negative territory had they not adjusted their spending habits. They would have liked to buy their first house at this stage, but with no savings to speak of they realised that this was a dream for the future. Nevertheless one wet Sunday they took the children and spent a day looking at the newer houses.

They had both grown up in an architecturally designed 1970s house (and had vowed never to use patterned wallpaper again) and so were keen to see what changes had occurred on the residential housing front. At first they were impressed, large font entrances, sweeping driveways and room for at least two cars. Inside it was warm and inviting, if a little stuffy with little air movement. Two bathrooms and an ensuite in the master bedroom impressed the wife, but the flimsy cladding that appeared to be held together with the pale paint that purported to have some colour, did not impress the husband. For some reason the garden had lights that shone up the high fence that surrounded the small section!

Despite knowing what the answer was, they took stock of their income and expenditure and realised that with a few more years of saving they might be able to make a deposit on a house, but it would not be on the North Shore.

Outgoings-to-Income and Residual Income Measures

Early in Part One, the OTI and RI concept was introduced. This simplistic measurement system provides some commentators e.g. banks, with a tool to determine whether lending an amount of money will lead to hardship on the part of the borrower. The measures are also used to gauge rents and poverty levels when assessing needs based assistance to families by social agencies.

For interest, a snapshot of the OTI and RI has been applied to two family structures that was deemed to be 'successful' in servicing the cost of a mortgage

The Outgoings-To-Income [OTI] ratio is premised on the limit that the amount of gross income spent on housing costs per economic unit should not exceed 25%. The ratio is determined using the following formula:

$$\frac{\text{TOTAL HOUSING COSTS}}{\text{TOTAL HOUSEHOLD GROSS INCOME}}$$

Test 1: SUPPLY, 1990, Single, Officer
Total Housing costs: $21,496
Gross Income: $48,832
Result: 44% - UNAFFORDABLE

Test 2: SUPPLY, 1990, Couple, Officer
Total Housing costs: $21,496
Gross Income: $48,832+$23,932=$72,764
Result: 29% - UNAFFORDABLE

The Residual income [RI] is defined as the income left after housing costs have been paid and would ordinarily be above 30%. This is determined using the following formula:

$$\frac{\text{(TOTAL HOUSEHOLD DISPOSABLE INCOME - ACCOMMODATION COST)}}{\text{TOTAL HOUSEHOLD DISPOSABLE INCOME}}$$

Test 1: SUPPLY, 1990, Single, Officer
Net income $41,252
Total Housing Costs $21,496
Result: 48% - AFFORDABLE

Test 2: SUPPLY, 1990, Couple, Officer
Net income $59,404
Total Housing Costs $21,496
Result: 63% - AFFORDABLE

Interestingly, the work performed on both of these family structures at Appendix F, Pg. 139-144 includes the statistical expenditure and the cost of housing, and both family structures are defined as being able to save. Therefore the use of the OTI or RI as a precursor tool to determine whether a family would be able to accept the burden of housing costs needs to be undertaken with care, as per the sentiments of Batten (1997), Rosborough (2005) and the NZ Treasury (2006).

As discussed at pg. 22, clearly the OTI and the RI are not the 'Holy Index' of simplistic measures and a more considered approach to housing affordability needs to be undertaken, as it is hoped, this paper has demonstrated.

Summary – Part Five

The data analysis methodology was designed to replicate the process of employment, marriage, household formation and dependent arrival and support. Across this social aspect is the ability to earn, consume and save toward a median priced house.

Many of the households were able to save a deposit, as long as all savings were accrued forward at the rate indicated; 58% could achieve this goal in 1955-1965, 75% in 1975-1984 and 54% in 1990-2001. This meant that if a household was able to make positive savings in a consistent manner it was more likely to be able to raise the required deposit at the proposed year of house acquisition. This consistency remains despite removing all savings against the first three years of working, it remains if all negative savings are removed, and it remains if all savings are removed up to the year of marriage. This suggests that the greatest predictor over whether any of these households was able to save a deposit against a median house, is a high level of income and not the length of time that savings accrue, although the latter has a strong influence.

By the last test however, the percentage of households that could go on to make the purchase and service the cost of a house had dropped to 50%, 21% and 46%, for the 1965, 1984 and 2001 purchase years respectively.

The data analysis has revealed that there is a remarkable consistency in this apparent *in*ability to afford a house at the median level within the North Shore across the time series and across household proxies, and that this inability has remained fairly consistent across the 50 years.

There are however relatively significant benefits from being amongst the higher salaried cohort as, with one exception, this cohort has improved its ability to purchase a house when compared to 1955-1965.

It did appear that there existed a window of opportunity in the 1975-1984 period, as per the commentary in Test One. However, the opportunity was a mirage, as by test five the apparent outcome changed from one of opportunity to inability as the reality of costs to acquire bit into the household's income.

In the 1990-2001 period the ability / inability separation is wholly higher- and lower-salary delineated.

Turning to the affordability of each of the suburbs; with one or two minor exceptions, the results are consistent with those of the median price North Shore houses. It would appear therefore that notwithstanding that the median price of the North Shore is not the same as the median suburb prices, the litmus test of affordability could, within limits, be a test against the North Shore median price. It is therefore equally likely that an inability to afford the North Shore median is also a predictor that the other suburbs under test are also beyond the reach of these cohorts.

There have been significant employment, relationship, family and community changes in the 50 years of study, as the three vignettes illustrate.

The use of simple measures as a 'rule of thumb' may have their adherents, and they may be useful in some instances, however, even the small tests undertaken on two 1990 families give rise to the fallacy that they can be used as the arbiter of affordability.

Finally, it cannot go without notice that based on the information used to determine the results, the lower salaried elements of each of the cohorts have existed through a multi-decade period of being unable to afford a median house in any of the suburbs under study.

PART SIX – INTERVIEWS

"In Conversation[24]*"*

INTRODUCTION

As part of the strategy of this paper is to bring a human focus to the indexing culture of decision-making, it is useful to include three selected interviews with ex-serving Navy personnel.

The personnel selected were all recommended by Navy as representing a useful cross-section of personnel and in the event, two of the interviewees mirror the branches chosen as a synthetic proxy for the paper; Supply and Seaman

The limitations of the interview structure and its depth and breadth are acknowledged, and they need to be read and reflected on accordingly. However, in the event, the similarities with the synthetic proxy model are surprisingly good.

The interviews have been recorded in the same unstructured manner. Minor comments, post interview, are appended in red italics to the first of the interviews where it was felt necessary to connect the interview with the information in this paper. Readers should be able to make similar connections with the final two, as they feel necessary.

There is no summary or conclusion as a result of the interviews; they are recorded and included for confirmation purposes only.

[24] "In Conversation", a 1993 album by Bob Marley.

INTERVIEW 1 – 'JOHN'

Born: Sept 1941
Joined Navy: Jan 1959
Age at which joined Navy: 17 "and a bit"
Branch joined: Supply and Secretariat, Stores Assistant
Trade: Writer [WTR]

Joined as a Junior Rating under the Youth rates of pay, as the rank of 'Ordinary' did not occur until age 17yr 6 months

Pay was 10/- per day (or two dollars). *This equates at a gross pay rate of ~$730.*

Promotion:

Junior	-	Jan 59	
OR	-	Sept 59	*(8 months. Note: promotion is age related)*
AB (Wtr)	-	Sept 59	*(0 months)*
LD	-	Jun 62	*(32 months – 2yrs/8mths)*

At this stage the Petty Officer WTR was accepted as a 'commissioned from the ranks' officer.

Acting Sub/Lt	-	Jul 66	
Lt	-	Dec 68	*(29 months - 2yrs/5mths)*
LtCdr	-	Feb 76	*(87 months - 7yrs/3mnths)*
Cdr	-	Feb 82	*(72 months – 6yrs)*

Resigned in Feb 85, having completed 26 years of service

Speed of promotion: There was a "mass exodus" in late 50's early 1960's due to the combination of full employment in NZ and the end of the 12 year fixed term engagements from the men who joined after the war. So, during the 1960s and 70s the rate of promotion was quicker than had been the norm. *This was an answer to the difference in John's speed of promotion compared to that presented in the research paper.*

Married: Mar 68 age 27 years. Wife (born Dec 39) was 28½ at the time of marriage. *The age of marriage was quite different than the norm, but the difference in ages is within the two year median spread discussed in this paper.*

Children: The couple had two children, born Jul 69 and Jul 71. *This presented a fertility age of ~30 years for the first child and a frequency of 24 months.*

Salary: In 1977 salary ~$14,000. He remembers at a BBQ he attended with service mates, that they commented on how well off they were, even though they were not receiving exorbitant salaries – "it was what you could do with what you had that made the difference". In the late 70's and through the 80's salaries increased markedly, but there was no change in personal circumstances.

Accommodation: Lived in barracks from the time he joined until he got married. They then moved to private rental accommodation in Wellington ($8.5/week), which was a Public Trust House. This was heavily subsidized compared to what was then considered 'normal'. There were no pool/ service houses in Wellington.

At that time a service person had to get posted away from Auckland/Wellington to get housing assistance a.k.a. service house/Married Quarter, and were not entitled to a Married Quarter until you had returned to Auckland

If one were entitled to housing in Auckland, a posting to Wellington also made one eligible to a pool house in the new location.

From 1968-1979 they lived in rental accommodation, and all but 3 years of this were lived in Service housing (they moved 'back' to Auckland in 1972, then back to Wellington in 1978).

Officer's housing in Auckland was normally always vacant as all officers had bought their own house and, at that period, a set number of all houses had been set aside for officers. This meant that in times of low demand, houses would remain vacant for extended periods.

Rent: Pool House Rental was 25% of gross salary, subject to a maximum that ended at rank of LtCdr (late 70's). Service Housing rentals were considerably less – a posting to Wellington "cost" the Serviceman).

Housing: They bought their first house in Mar 79, for $27,800 in Karori, Wellington (leasehold land) *(Note that the house is not on the North Shore, so the housing was probably cheaper)*. They were offered the sale of the lease two years later for $40,000 *(which sets the value of the land)*. They sold the house in 1990 for $153,000 *(note, not the land)*.

Mortgage: The mortgage on the above house was made up from two sources. They took out a State Advances Loan under service provisions (one had to be in the military for 12 years to become eligible for the loan, which was governed at $12,000 / 30 years / 3% for the first 5 years, then 5% thereafter), and a Post Office [PO] second mortgage, as the PO had recently started lending on second mortgages. This couple worked out the maximum that the PO would lend to enable them to gain the $12k State Advances loan, and then they looked for a deposit for the remainder. The 'normal' State Advances loan rate at that stage was 7.5%, so the service provisions of the State Advances loan was effectively being subsidized again, by Government, by about 3-5%.

They had $3,000 *(~10%)* required for a deposit on the first house; and this was saved over 1976-1978 by the wife working part-time.

The reason that they decided to buy a house, rather than rent was the thought that "if we did not do something quick then housing would then become even more unaffordable". At that stage they had $3-4,000 in savings, so they starting to look around. There were lots of developments going on at $30k house and land package, with 10% deposit down.

The price of housing in Belmont and Devonport was recognised as becoming outside his means, as a LtCdr *(1976)*.

Wife working: His wife had a part time job (2nd child was 5) from about 1976. The reason was for 'something to do and the kids were then at school; "It also enabled us to accumulate a deposit for the house". She worked part-time in a kitchen shop in Karori until 1981, when they went to UK. On their return she worked in a post office from 1983 until 1991, finally giving up all types of work in 1992.

Saving: The couple lived to their available means while in a service house, "so we did not save". Saving for the house deposit required the second job.

Cars: The couple had two cars – a Ford Prefect and an Anglia.

Family benefit: The FB was 4/6 per child/ per fortnight. There were also tax concessions available to a married couple and a couple with children *(note that these have not been factored into the calculations within this paper)*.

Suburbs: Glenfield was being opened up in the 1960s. A lot of the service houses were turning over as ratings took advantage of land and house packages and bought their own house. However, some 'Gentlemen' Officers tended to stay in their service house and therefore the Navy brought in an 8-year rule to 'move them on in a timely fashion'.

General comments:

- Government dictated interest rates, which were at 3 - 4% during 60s and 70s.
- No issues with building consents to the same degree and influence, and you could and did, build your own house; "It was the done thing in those days, the houses were basic, simple and of similar design".
- John could of bought a section in Browns Bay *(before the bridge opened in 1959)* for £100 quid ($200) and £10 ($20) down. This equated to foregoing his tobacco allowance and receiving same in money.
- You could possibly save for a house if you penny pinched (a house in the £10-12,000 bracket with an officer on £3,500-4,000) in the late 50s.
- "Any comparison with today is ludicrous, people's expectations were a lot lower – the floors were bare for the first 3-5 years, and you worried about the privacy first and comfort for bedrooms, dining and kitchen, before the lounge."
- Garages were non-existent, as generally no car to worry about.
- In the 1990's the Defence's base-line funding was cut by 3%. In the main, this was taken out of salaries across the board – took allowances off the ratings.
- In the 1960s service life was free for on base board and lodgings and totally free uniform.
- In the late 1970s Hire Purchase was starting to eat into incomes, generally used to acquire things that were new to the household and to society in general.

Interview conducted in Fielding 17th Sept 07, 1500-1700

INTERVIEW 2 – 'SANDY'

Born: Oct 33

Joined Navy: Sept 49

Age at which joined Navy: 15 years and 10 months

Branch joined: Seaman

Sandy joined the Navy as a Boy Entry – Seaman Boy, Second Class. The designation 'Boy' was age related and would change to 'adult' and at a rank of Ordinary Rate, at age 17 ½.

His pay was 15/- a week, and he got 7/6 in the hand. The remainder went onto a ledger. The ledger was effectively a bank, but with no interest accruing, and at age 17 ½ he was able to 'draw against the ledger' and take out the accumulated savings.

Promotion:

Boy	-	Sept 49	
OR	-	Aug 51	(age 17 ½)
AB	-	Jul 52	(18 ½)
LD	-	Sept 53	(as acting LD, confirmed in Sept 53)
A/PO	-	Aug 55	(as acting PO, confirmed in Aug 56)
A/CPO	-	May 62	(as acting CPO, confirmed in Jun 62)

At this stage Sandy was accepted as a 'commissioned from the ranks' officer.

Ensign	-	Jul 68
Sub/Lt	-	Oct 69
Lt	-	Dec 71
LtCdr	-	Jun 75
Cdr	-	Mar 93

Resigned in Mar 93, having completed 43 years and 7 months of service.

Speed of promotion: Promotion speed was relatively quick when compared to his peers and this was due to his own efforts, rather than that of a system or process. In Sandy's words "because I worked at it".

Married: Sandy married in Nov 57 when he was 24 and his wife 25.

Children: The couple had five children. The first was born Jul 58, a set of twins in Mar 61, another in Jan 63, and the last in Jan 68.

Salary: As a Petty Officer, when he was first married ('57/'58), he earned "about £1,000 or £1040".

Accommodation: Up until the time he got married Sandy did not 'live ashore' and spent his time at sea, overseas on course, or on a Naval base in barracks.

Renting: The first time he rented was after he returned from Australia in 1958 when he rented a flat in Devonport.

Housing: At the end of 1956 or beginning of 1957 he purchased a block of land in Forrest hill (Auckland), which cost £750.

Mortgage: In 1958 the couple got a £2500 rehabilitation loan for 3% over 30 years and built a house (cost £3,000) on the block of land (size of house 1046 square feet). The house was built by a local contractor.

The couple had to take a loan out for their first furniture as well.

Wife working: Sandy's wife was a Karitane Nurse. She stopped working "when we got married". However, she did do part time work as the children allowed. She carried on working part time after the children were old enough to look after themselves and continued nursing on a regular part time basis. She worked until she turned 65.

Saving: There was not a lot of saving for quite some while as they were essentially living from hand to mouth in the early years.

Cars: Did not have a car until 1961, but by then had managed to save £120 and bought a 1937 Hillman.

Family benefit: The couple capitalised the family benefit and used this to extend the house – put a dining room in, extend and modify a bedroom and enlarged the kitchen.

Suburbs: Lived in and remains in Forrest Hill.

General comments:

- Did not have a social life at all as they could not afford it.
- Had five pounds total, when the first daughter came out of hospital ('58).
- They went without to make repayments on the loan "Had sheets over the windows because we could not afford curtains".
- The Forrest Hill road and the East Coast Bays road was only a gravel road in 1957, well before the bridge opened.
- Had to walk to Milford to catch the bus in the morning – 30 minutes walk – as there were no public transport services, and did not have a car.
- Bought the first lounge suite just after moved into the house in 1958. And then, all we had was the lounge suite, a 2nd hand folding plain pine table, pine stools, a 2nd hand double bed and no carpets. They could not afford to varnish the floor.
- Sandy was at sea "a hell of a lot", so therefore was often away from the family (15 months was not unusual).
- Got their first luxury – a TV (the first in the street) about 1959/60.
- Got a dryer in 1961/62 as a response to three young children (and still have it!).
- Young people today want everything now. They are not prepared to save and accumulate to acquire things, and want to have a good social life on the way.

Interview conducted in Auckland, 5th October 2007, 0900-1030

INTERVIEW 3 – 'TONY'

Born: Mar 40

Joined Navy: Sept 56

Age at which joined Navy: 16½

Branch joined: Supply, Junior Writer ('Junior' was an official rank at the time).

Promotion:

Probationary Writer (equivalent to Ordinary)	-	Sept 57
Writer (equivalent to Able)	-	late 58
Leading Writer (equivalent to Leading Hand)	-	Feb 62
Petty Officer Writer (equivalent to Petty Officer)	-	Aug 65
A/CPO Writer	-	beginning 68

Relinquished A/CPO in early Jan/Feb 69, but was then made a permanent CPO WTR in 1970

At this stage Tony was accepted as a special duties list officer; that is, 'commissioned from the ranks'.

Lt	-	Jun 73
Temporary LtCdr	-	Mar 77 (A temporary rank was paid at the rank worn, whereas and Acting rank was not, being paid at the previous rank held)
LtCdr	-	Apr 80
Cdr	-	Nov 86

Retired on completion of 40 years service in Dec 96.

Speed of promotion: "About the norm". Got temporary rank as a CPO WTR early, but this was to get posted to a particular job, that benefited from a higher rank to do the job effectively.

Was promoted directly to Lt from CPOWTR which was not normal, as it bypassed the Ensign and Sub Lieutenant stages. This was achieved under a scheme that was not operational for long.

Married: He married in Nov 66 when aged 26½ and his wife 21½ .

Children: They had three children, born Apr 68, Jul 70 and Oct 73.

Salary: Tony's pay was £7 per fortnight as a Junior and when made up to Probationary Writer (17½ years), it went up to £11 per fortnight, or 25/4 per day.

Accommodation: I lived onboard as a single man. The Navy did not charge for this at the time.

Renting: Rented a Navy house in 1969 while serving on HMNZS OTAGO for just over a year, but did another, very short renting stint in '73 on return from Singapore and during officer courses before posting to Wellington.

Housing: Tony bought their first house in Wellington in 1970 for $10,500 and sold this in late '76 for $23,000. Bought again in '76 in Gelnfield Auckland for $47,000 which was sold in '81 for ~$67,000. They bought in Forrest Hill, Auckland for $80,000 and sold in late '86 for $120,000. Bought in Wellington in '87 for $110,000 and sold this for $135,000 in late '90, then rented in Devonport Calliope for a year before buying in Mairangi Bay at the end of '91.

Mortgage: The first house was bought with a family advance of $1500, a State Advances Loan for $7000 @ 5% for 30 years, and a 2nd mort from PSIS for 7.5%. "Without the family advance it is unlikely, although possible, that we would have had the house we got". The mortgage was a major part of the income drain.

Wife working: Tony's wife was a nurse and worked part time throughout the marriage, pulling back the hours when the children were young and increasing them as they grew. When the children were old enough she worked as a full-time part-time nurse.

Saving: "Not really, nothing substantial prior to marriage. No huge savings being achieved throughout the early years of married life".

Cars: "Had one when we were married, got another in '67". The first was a 2nd hand Triumph Herald with a VW car after that. The first new car was bought in Singapore in between 1971 and 1973.

Family benefit: "Don't recall capitalising the family benefit".

Suburbs: Glenfield, Forrest Hill and Mairangi Bay, Auckland

General comments:

- We lived a simple sort of life but, based on what one expected those days, we were able to live in reasonable comfort. One did not do overseas trips and as for a new car, well one didn't do that.
- It was not easy, but you could manage it.
- People in my generation did not stick around (in the Navy) for pay and did not join for pay, they had other ideals.
- People are much more 'pay orientated' now than before – no bad thing.
- A person's expectations were nowhere near what they are today.
- Our first house was an ex-state house, and in good nick.
- Probably pretty damn difficult for any rating to buy on the North Shore at all now, certainly not within striking distance of the Naval Base. A good reason for young servicemen to leave the Navy to take up employment in lower cost areas.
- Brown's Bay and Torbay were considered to be out in the sticks (in the 1960s) and for sometime after the bridge went up.

- There were ratings who were buying out in Brown's Bay, but we wondered how they could get to work in the morning 'it was so far out'.
- There was a tremendous satisfaction from owning one's own house. Even in the early days it was important to get on the housing ladder, mainly for the security that that offered.

Interview conducted by phone to Blenheim, 5th October 2007, 1400-1520

PART SEVEN – CONCLUSIONS AND RECOMMENDATIONS

"What a Way to End it All[25]*"*

CONCLUSIONS

The lack of a formal definition and agreed measure of housing affordability, limits researcher's abilities to make relative sense across the works that have been performed to date.

Of those studies that have been performed, most have been limited to the recent past, the present and an assumed expected future, based on scenarios which are themselves based on index 'information'; however, the use of indexing is limited in both manner and degree. These limits have been explained in some studies that have cautioned against their use to provide the foundation from which to form social opinion.

The definitions of affordability that are in use suffer from inherent flaws caused by excluding aspects that are intrinsic to the success of a family achieving a house purchase. The definition created in this study rectifies these deficiencies and is considered to be a fairer representation of 'housing affordability'.

If, as is believed, the indices used to describe affordability should be separated into their component parts, so too should the relationship of one period in history to another when one looks back in time to determine whether there are answers to contemporary questions.

[25] "What a Way to End it All (The Anthology)", a song by 'Deaf School', Clive Langer, 1976-78

The social considerations of community, relationship, employment and family have materially and functionally changed over the years. It is therefore inconceivable that commentary should assume that a social condition that exists in 2001 could be a facsimile of that which existed in some earlier period, especially if that period was now of some years previous. This limits the ability of an index to explain that affordability is better or worse than in the past and this limitation supports the contention that affordability indices are not sufficient in and of themselves to adequately explain whether any household can afford housing.

Nowhere is this more apparent than when reviewing the standard, size and appointment of house design. The ability to afford a stock-standard, simple design, small(er) sized house built around function in the 1950s and 1960s is significantly different than achieving the same result against a house that has grown significantly and has a large component of form and for which additional cost is attributed, in the 1990s and beyond. If the information regarding house size is related back to the comments in Part Two, it suggests that there has been a significant blurring between economic need and personal want.

The achievement of that want is manipulated by the cost of borrowing which has shown dramatic changes over the life of the study period. From a low of under 5% in the mid-1950s to ~20% in 1987, the effect on individual families is glimpsed in the 1975-1984 review of family life as the ability to secure a house became increasingly tenuous.

Beyond the façade, housing remains the deliverer of shelter, warmth, and security but is delivered in 1990 with no greater innate abilities than that of the 1950s; the same three provisions are accounted for and the supply of utilities and removal of waste are identical. Such changes that do exist are wrought on the design permutations, materials and, arguably, post-build retrofit of appliances.

The choice of the military service person to act as the synthetic cohort attains two results. The first is that it fulfils a central aim of the paper which was to determine whether the service person has always suffered an inability to afford a median house, but the second benefit, not recognised at the outset, is that the cohort can stand in for the wider community, across the time series.

It is unlikely that salary records of this age exist in as complete a form as that from the military archives and therefore the process has provided visibility to a wider social spectrum.

In the event the results do show that there has been a marked delineation between the ability of lower and higher salaried households to attain and maintain the cost of a house on the North Shore and that this strata has existed for some decades.

Given that the measure is whether housing could be attained or not, this study also suggests that despite the apparent worsening of the housing affordability indices, the results demonstrate that for these household types, those that found it difficult to gain entry into the housing market in the 1960s, found it equally hard to gain entry into the 2001 market; *ipso facto*, worsening of an inability, remains an inability.

The length of saving is not as good a predictor of deposit achievement when compared to having a higher salary, as a greater differential between income and expenditure in the crucial few years before a house purchase has a greater positive effect.

A major arbiter of success of house affordability remains the price of the mortgage. That is to say, the ability to sustain mortgage repayments rather than the ability to raise the required deposit had the greatest effect on success (although one must have a deposit to entertain a mortgage under this paper's rules).

In regard to the military person, the rank at which a house was contemplated remained fairly static over the years as rank attainment is not connected with social expectation of marriage, family formation or child bearing.

Lower salaried households found it equally difficult to attain a median priced house in any of the five suburbs under study, as they did when tested against the North Shore median. This suggests that the contestability of affordability could be made solely against the North Shore median as a precursor to determine whether the household under investigation could or could not afford to purchase anywhere on the North Shore.

Single income streams that service the cost of any dependents remain insufficient to meet the cost of house ownership, and this creates a necessity for an additional income into the household.

The conclusions above support the contention in the 2003 study by Skinner that 97.8% of the then service rental households could not afford the median house on the North Shore. As the tenant cohort in 2003 was predominantly (86.4%) made up of lower salaried personnel, this limited accessibility to a tenure of choice has now been shown to not have been a result of relatively recent events, but is a continuation of relativities that have existed for some while. To the first and main aim of this paper then, the answer is that yes, some Navy servicemen and women have always faced the inability to afford the median house on the North Shore, Auckland and have therefore had to contend with making negative choices with respect to their housing and or subsequent life-style. And this conclusion will therefore hold true for any civilian cohort that operated within the household constructs used here.

Finally, whether the paper's use of synthetic families and households as a proxy for actual families in each of the periods under study is the *right* way to undertake this analysis could probably be debated through the acquisition of more data of a greater depth. What cannot be denied however, is that it is unlikely to be more *wrong* than the use of contemporary indices.

RECOMMENDATIONS

The following recommendations are suggested as a way of improving this research thread.

1.) Establish sufficient data points against actual family groups that will allow their social history to prove whether the 'information story' that occurs through the use of indices is an acceptable facsimile or whether, as I have argued here, only by establishing a social history can the real effect on family life be established.

2.) What has not been demonstrated in this research is how close each household came to attaining the deposit and whether 'proximity to attainment' has negatively altered, as a worsening of housing affordability suggests.

3.) This research did not "dis-aggregate" the elements that form modern affordability indices, and therein lies an avenue of discovery; determine how many elements / what percentage, of an index formula actually touch real families or households by undertaking a test similar to a 'standard deviation' test.

4.) Overlay this research with the inclusion of Government assistance packages e.g. family assistance packages, student loans, and thereby identify and bring forward some contemporary social reality to the issue.

5.) Undertake a comparative test of successful and unsuccessful mortgage applicants against the OTI and RI ratios, and evaluate whether the ratios are performing the function they designed to do, and therefore establish their usefulness in the New Zealand market. This is especially as, with only two examples within this paper, the ratios gave results that lie at opposite ends of the spectrum.

ACKNOWLEDGEMENTS

The culmination of the Masters programme carries with it some responsibility to recognise the assistance from others who have been instrumental in the success.

In order of appearance and sequence of recognition, the first mention must go to Rob Bryant, who's insistence in 1999 that I step aboard the academic ladder, has led me directly to this point.

To Prof 'Bob' Hargreaves who was kind enough to accept a rushed and late '*admission with equivalent status*' to a GDipBusStud in Property Management at Massey University, even though one Judith Callanan rightly protested by pointing out that I was an untested student who had not met the criteria to get in; the fact that it was the first day of the Semester did not faze her. Needless to say, her efforts to thwart my intent engendered a healthy respect for Judith and I managed to stay mostly on the right side of her throughout the academic year. Late in that 2000 year, Iona McArthy and Judith, by now firm friends, tried their utmost to convince me not to undertake the Masters Programme, rightly pointing out that I needed my head read by all manner of specialists just for contemplating the task. Once they realised that my heart was set however, they graciously pointed me in the direction of Lincoln University and with their best wishes, set me on another journey.

An equal to Prof Hargreaves as a good-man-to-know, Ivo Wynn-Williams may have been similarly sceptical of a largely untested wannabe who arrived almost unannounced with an application to Lincoln, but with consummate manners he agreed to 'forward it to the Board'. Let off with another Provisional Entry, Ivo became my mentor, cajoler, supporter and for one difficult year and over two quite separate but important events, champion on my behalf, for which I remain very grateful. Thanks also must go to John McDonagh who knew I would take more than one of his papers, despite the first time probably being more than sufficient for him.

To Prof Chris Eves who may, or may not, have been ambushed into hearing a verbal presentation in lieu of a written submission as I ~~plea~~ asked for dispensation to undertake a particular dissertation topic. Surprisingly, he agreed. Any thought that he was feigning interest was soon dispelled as he targeted and destroyed off tangent research effort, while my exploratory forays into some parallel avenues of interest were politely listened to but quickly rendered irrelevant and ultimately, squashed. Eventually then and despite myself, I arrived at the point where I was able to present a result and accept his judgement. I would like to think he enjoyed the experience. I suspect that the pleasure is all mine.

To all the academics, for want of a better word, from both Lincoln and Massey Universities, I thank you for the experience, the learning, and the openness that you all exhibited to me, the unknown quantity.

There remain four unique people who are owed a particular mention. The first three – Bronwyn, Jennifer and Erin – have had to put up with a father who has expressed a desire to learn, and they have carried and will carry, some of the burden from this quite selfish activity. From this I trust they will reflect on the positive benefits from study and know that learning is a life-long, non-discriminatory process. As they each start their university life, it is my hope that they will aspire for the top and pursue it with some determination, but perhaps with more balance than their father.

Ultimately there is one person who had reasonable cause to say enough is enough quite some time ago, but has chosen to stay the course. To Christine, I hope that the results of this course and the benefits that it brings will justify the long hours, days, months and now years of study that has sequestered much of 'our time' for me to use on this pursuit. I find myself unable to thank you enough.

Lastly, special mention must also go to: Paul Bonnetti, Charles Cooke, John Darroch, Bruce Kenning, Craig Murray, Bruce Pepperell, David Prentice, Gerald Rundle, and Tony Shears, all of whom have materially assisted in some way and are thus owed a debt of gratitude.

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BIBLIOGRAPHY

Arkinstall, V., (2003), *Retirement Income Report*, Periodic Report Group 2003

Aschoff, T., (2004), *Housing Costs and Affordability,* DTZ Research

Austin, T., and Mead, D., (2004), *Housing Affordability in Queenstown Lakes District: The nature and scale of housing affordability issues in the district*, A report prepared for Queenstown Lakes District Council and the Queenstown Lakes Community, University of Auckland and Hill Young Cooper Ltd http://www.qldc.govt.nz/Documents/ContentDocuments/Affordable%20Housing%20Final%20Report.pdf

Baddock, J., (2007), *Salary data on Navy personnel*, Excel spreadsheet.

Bagrie, C., (2007), *Property Focus. Irrational or rational exuberance?*, The National Bank

Barker, K. (2004), *Review of Housing Supply: Securing our Future Housing Needs.* Report for the Chancellor of the Exchequer and the Deputy Prime Minister, London

Barry, M., (2007), *Interview Nine to Noon,* 14 May 2007, Radio NZ National

Batten, D.C., and Maher, C., (1997), *The Limits to Housing Affordability Indices*, Australian Housing and Urban research Institute, RMIT and Monash University, Melbourne, presented at the Institute of Australian Geographers and New Zealand Geographical Society Conference, Hobart

BRANZ, (2007), *Report on increase to floor area of NZ Houses*, Excel spreadsheet, Building Research Association of New Zealand

Buiter, W.H. (2006), *Stabilisation policy in New Zealand: Counting your blessings, one by one*, A paper written for the 'Macroeconomic Policy Forum' June 2006 in Wellington N.Z., Professor of European Political Economy, European Institute, London School of Economics and Political Science

Callister, P., (2001). *A Polarisation into Work-rich and Work-poor Households in New Zealand? Trends from 1986 to 2000.* New Zealand Department of Labour Occasional Paper Series, Occasional Paper 2001/3.

Callister, P., (2005), *The future of work within households: Understanding household-level changes in the distribution of hours of paid work*, Callister & Associates

Callister, P., & Rose, D., (2001), *Implications of Labour Market Change for Retirement Income Policy*, a report prepared for the Ministry of Social Policy

Cheyne, C., & Freeman, C., (2006), *A rising tide lifts all boats? A preliminary investigation into the impact of rising New Zealand coastal property prices on small communities*, Social Policy and Social Work, Massey University, New Zealand Journal of Social Sciences Online. http://www.rsnz.org/publish/kotuitui/2006/08.php

CHRANZ, (2006), *CHRANZ Fact Sheet, Affordable Housing in New Zealand*, Prepared for the National Summit – Affordable Housing

Cochrane, B. (2007), *Email comment citing Giles and Hampton (1985, p. 461), regarding Engel curve analysis on New Zealand expenditure data*, Research Fellow, Population Studies Centre, Centre for Labour and Trade Union Studies, University of Waikato

Cook, L., (1997), *New Zealand's Current and Future Population Dynamics*, A paper presented at the Population Conference, Wellington, Statistics NZ, 12-14 November 1997, Statistics New Zealand

Cook, L., (1999), *Consumer Expenditure Statistics*, Statistics NZ

Coontz, S. (1992), *The Way We Never Were, American Families and the Nostalgia Trap*. ISBN 0-465-00135-1

CORIOLISRESEARCH, (2001), *Fast Moving Consumer Goods retailing in New Zealand*, Report to Progressive Enterprises

Curtis, B., (2007), *A Solution For Affordable Housing in Manukau: New town a solution for affordable housing*, Scoop Independent News.

DTZ New Zealand, (2004), *Changes in the Structure of the New Zealand Housing Market, Volume 1*, prepared for the Centre for Housing Research, Aotearoa New Zealand

DTZ New Zealand, (2004), *Housing Costs and Affordability in New Zealand*, a research report prepared for the Centre for Housing Research, Aotearoa New Zealand

DTZ New Zealand, (2006), *The Future of Home Ownership and the Role of the Private Rental Market in the Auckland Region*, a research report prepared for the Centre for Housing Research, Aotearoa New Zealand and the Auckland Regional Council

Eves, C., (2007), *Personal comment*, Professor, Lincoln University (NZ)

Economist Intelligence Unit, (2005), *Asia to 2014: Macroeconomic Megatrends: New Zealand*, A research paper prepared for the Asia New Zealand Foundation

Fleming, M., (2000), *Building Technology Design and Services*, Massey University

Furstenberg, F.F. jr, Kennedy, S., Vonnie, C., Rumbaut, R.G., & Settersten, R.A. Jnr, (2004), *Growing up is Harder to do*, American Sociological Association, Vol 3, No. 3.

Griffin, M.T. (1994), *Audit of NZDF Housing*, Ministry of Defence

Grimes, A., Kerr, S., Aitken, A., & Sourell, R., (2006), *The housing fulcrum: balancing economic and social factors in housing research and policy,* Motu Economic & Public Policy Research, New Zealand Journal of Social Sciences Online

Hopkins, J., (2000), *Location Factors Affecting Land Use,* from Barlow, R., (1986), *Spatial Relationships Affecting Land Use,* Land Use Economics, Real Estate Valuation and Management, Department of Finance, Banking and Property, Massey University

Fleming, M., (2000), *Building Technology, Design and Services,* Institute of Technology and Engineering, College of Science, Massey University

Gibson, J.K., & Scobie, G.M., (2001), *Household Saving Behaviour in New Zealand: A Cohort Analysis*, Treasury Working Paper 01/18

Grimes, A., Kerr, S., & Aitken, A., (2003), *Housing and Economic Adjustment*, Motu Economic and Public Policy Research Trust, Motu Working Paper #03-09

Hewett, S., & Simmons, D., (2005). *Harbour Bridge to City Motorway Capacity Improvements Traffic Impact Assessment, Technical Report No. 1*, Beca Infrastructure Ltd.

Hill Young Cooper, (2007), *Report: Housing affordability in QLDC – nature and scale of the problem*, Environment Resource Futures. http://www.qldc.govt.nz/Documents/ContentDocuments/Committee%20presentation%2016-06-04%20Affordable%20Housing.pdf

Housing New Zealand, (2003), *Housing Market Report*, Housing New Zealand Corporation, June 2003

Hughes, P., (2004), *New Zealand Families Today*, A briefing paper for the Families Commission

Jackson, N., & Pool, I., (1996), *Will the Real New Zealand Family Please Stand up?*, Substantive and Methodological Factors Affecting Research and Policy on Families and Households, Population Studies Centre, University of Waikato http://www.msd.govt.nz/documents/publications/msd/journal/issue06/spj6-real-nz.doc

Johns, G., (2003), *Hot Property? Your Money Focus on Property*, Exchange Magazine, Westpac Banking Corporation

Kerr, S., & Timmins, J. (2000), *Economic Geography and Spatial Statistics: Theory and Empirics of New Zealand regions*, Treasury Working Paper 00/11.

Klitscher, R.J., (1993), *NZDF Housing Policy*, Defence Housing Policy

Krishnan, V., (2001), *The Cost of Housing and Housing Support*, Social Policy Journal of New Zealand, Issue 16, July 2001, pg. 118

Ledson, D., (2006), *Excellence Award Application*, Royal New Zealand Navy

Local Government New Zealand, (2007), *Submission to the Commerce Select Committee in the matter of Affordable Housing Inquiry*, Local Government New Zealand http://www.lgnz.co.nz/library/files/store_016/SubmissiontotheCommerceSelectCommitteeInthematterofAffordableHousingInquiry.pdf

Mahary, S. (2005), *Building the Future: The New Zealand Housing Strategy*, NZ Housing Corporation

Mahary, S., (2005), *The Social Report 2005, Indicators of Social Wellbeing in New Zealand*, Ministry of Social Development and Employment.

Martin, B., (1997), *Away From Equality: Change in Personal Incomes, 1951 to 1991*. Population Studies Centre, Discussion Paper No. 20.

Matthewson, J., (2007), *Housing affordability – home ownership in New Zealand*, New Zealand Institute of Economic Research Inc.

McDonald, W., (2004), *Comment by Transit Regional Manager*, cited in Scoop Independent News, 28 May 2004

McKinlay Douglas Limited, (2004*), The role of Local Government in the Provision of Affordable Housing*, A report prepared for Local Government New Zealand, Dunedin, Wellington and North Shore City Councils and New Plymouth and Western Bay of Plenty District Councils, McKinlay Douglas Limited

Mental health Commission, (2007), *Housing affordability - yet another challenge for mental health system users*. http://www.mhc.govt.nz/speeches-media/media-releases/2007/20070618-housing-affordability-yet-another-challenge.html

Mental Health Commission, (2007), *Housing affordability and mental health*, Press release, Mental Health Commission, reported by Scoop Independent News. http://www.scoop.co.nz/stories/GE0706/S00067.htm

Milligan, S., Fabian, A., Coope, P. & Errington, C., (2006), *Family Wellbeing Indicators from the 1981 – 2001 New Zealand Censuses* New Zealand, Statistics New Zealand, University of Auckland and University of Otago

Ministry of Agriculture and Forestry, (2004), *Significant Shift in Housing Trends*, A Paper published by the Ministry of Agriculture and Forestry in association with the Department of Internal Affairs.

Mitchell, I., & O'Malley, S., (2005), *How Affordable is Housing in New Zealand and What Strategies are Available to Reduce Housing Stress?* DTZ New Zealand Limited Ltd

Morgan, G. (2004), *A Nation of Landlords*, Article, Infometrics

Morrison, P.S., Callister, P., & Rigby, J., (2001), *The Spatial Separation of work-poor and work-rich Households in New Zealand 1998-2001: Introduction to a Research Project*, Institute of Policy Studies, Victoria University, Wellington

Nuruzzaman, M., (~2000), *Economic Globalization and the Production of Poverty in the South: A Structural Explanation*, University of Alberta, Canada

NZ Institute of Economic Research (Inc.), (2002), *New Zealand's changing competitiveness in exports to Japan*, Report to Japan-New Zealand Business Council, September 2002

NZ Treasury, (2006), *A discussion paper on Housing affordability documenting the aggregate evidence for New Zealand over the last twenty years.*

Olssen, E., (2003), *Occupational Classification: What the Census Tried to Do and Why It Failed.* Caversham Working Paper, 1996-3, University of Otago

Orr, A., & Purdue, A., (2001), *Saving and investment in New Zealand, and the Super Fund*, an occasional paper, Economics Team, Westpac Institutional Bank

O'Sullivan, D., (2005), *Impacts of Neighbourhood Scale on the Dynamics of Segregation*, Presentation to the SIRC 2005 – The 17th Annual Colloquium of the Spatial Information Research Centre, University of Otago.

Pavletich, H., (2007), *3rd Annual Demographia International Housing Affordability Survey: 2007 Ratings for Major Urban Markets*, Data for 3rd Quarter 2006, Demographia.

Pepperell, B., (2007), *Personal comment,* New Zealand Defence Force.

Pink, B., (2004), *New Zealand Family and Household Projections 2001(base)–2021*, Statistics NZ

Pink, B., (2005), *The Changing Face of New Zealand*, Government Statistician, Statistics NZ

Pool, I., Baxendine, S., Cochrane, & W., Lindop, J., (2005), *New Zealand Regions, 1986-2001: Household and Families, and their Dwellings*, Population Studies Centre, Discussion Paper No. 55, University of Waikato

Poole, I., (1996), *Macro Social Change in New Zealand: Historical and International Contexts*. Population Studies Centre, Discussion Paper No. 18.

Poole, I, (2002), *Transfers of Capital and Shifts in New Zealand's Regional Population Distribution, 1840-1996*, Population Studies Centre, Discussion Paper No. 42, University of Waikato

Rankin, K., (1991), *New Zealand's Labour Supply in a Long Term Perspective*, in Long Run Perspectives on the New Zealand Economy, vol.2, Proceedings of the Sesquicentennial Conference of the New Zealand Association of Economists, Auckland, August 1990
http://keithrankin.co.nz/academic.html

Rankin, K., (1991), *Generational Inequality? The New Zealand Census of Incomes from 1926 to 1991*, Paper for the 1995 Conference of the Economic History Association of Australia and New Zealand; University of Melbourne, March 31-April 2.
http://keithrankin.co.nz/academic.html

Rankin, K., (1993), *The New Zealand Workforce: 1950-2000*, New Zealand Journal of Industrial Relations, 18(2):214-235, Keith Rankin
http://keithrankin.co.nz/NZJIR93.doc

Rankin, K. (2005), *Housing and Health in Auckland a Summary of Selected Research*, Auckland Regional Public Health Service, Auckland District Health Board

RBNZ, (2006), *Submission from the Reserve Bank of New Zealand to the Commerce Committee on the inquiry into housing affordability in New Zealand,* Ref #2989594 v3.0.1.1, Reserve Bank of NZ.
http://www.parliament.nz/NR/rdonlyres/986E2378-B08A-469F-BDB2-65073AD207EC/57237/ReserveBankofNewZealand4.pdf

Robinson, M., Scobie, G.M. & Hallinan, B., (2006), *Affordability of Housing: Concepts, Measurement and Evidence,* New Zealand Treasury Working Paper 06/03.

Rodway, P., & Wilson, P., (2006), *Modelling New Zealand's Long-term Fiscal Position*, Policy Perspectives Paper 06/01, New Zealand Treasury

Rosborough, L.S., (2005), *New Zealand House Prices: Foundations and Fallacies*, New Zealand Association of Economists Conference 2005, *ANZ National Bank Limited.*

Scobie, G.M., & Gibson, J.K., (2003), *Household Saving Behaviour in New Zealand: Why do Cohorts Behave Differently?*, New Zealand Treasury working paper 03/32

Sanderson, K., (~2006), *Housing Affordability and Urban Density*, Business and Economic Research Ltd

Skinner, R., (2003), *Effect of 7-Year Rule on Navy Tenants*, an unpublished paper prepared for Lincoln University

Spoonly, P., Pearson, & D., Shirley, I. (1994), *New Zealand Society, A Sociological Introduction*, 2nd edition

Statistics NZ, (2001), *Average Rooms and Inhabitants per Dwelling*, New Zealand Long Term Data Series (LTDS), Table C.3.3.

Statistics NZ, (2006), *Statistics on Housing Affordability*: http://www.stats.govt.nz/analytical-reports/housing-affordability-report/introduction.htm

Statistics NZ, (2007), Definition of affordability: http://www.stats.govt.nz/analytical-reports/housing/housing-indicators/housing-indicators-affordability.htm

Statistics NZ, (2007), *Average Personal Income Tax Rate*, New Zealand Long Term Data Series (LTDS), Statistics NZ

Stephens, R. (2004), *Poverty and Policy - New Zealand Poverty Measurement Project,* Address to Treasury 16 March, 2004, School of Government, Victoria University

The Families Commission, (2005), *Measuring the Cost of Children, Concepts and Methodologies*, Families Commission, Occasional Paper No 01/05

The Families Commission, (2005), *Methodologies for Analysing the Impact of Public Policy on Families: A Conceptual Review*, Research Report No. 5/05, Families Commission

Waitakere City Council, (2006), *Waitakere City to free up land*, NZ Herald Press Release

Waldgrave, S., (2002), *Allocating Housing Assistance Equitably: A Comparison of In-Kind Versus Cash Subsidies In New Zealand*, Social Policy Journal, Ministry of Social Development, June 2002

Wellington City Council, (1996), *Housing, Quality of Life Report 1996*, Wellington City Council.

APPENDICES

Appendix A

Definitions of Affordability

"Affordability is concerned with securing some given standard of housing (or different standards) at a price or rent which does not impose, in the eye of some third party (usually government) an unreasonable burden on household incomes." (Maclennan and Williams, 1990a, p. 9)

"The answer is that any rent will be affordable which leaves the consumer with a socially acceptable standard of both housing and non-housing consumption after rent is paid." (Hancock, 1993, p.144).

"A household is said to have a housing affordability problem, in most formulations of the term, when it pays more than a certain percentage of income to obtain adequate and appropriate housing." (Hulchanski, 1995, p. 471).

"Physically adequate housing that is made available to those who, without some special intervention by government or special arrangement by the providers of housing, could not afford the rent or mortgage payments for such housing." (Field, 1997, p. 802)

"Definitions of affordability concentrate on the relationship between housing expenditure and household income and define a standard in terms of that income above which housing is regarded as unaffordable." (Freeman, Chaplin and Whitehead1997, p.2).

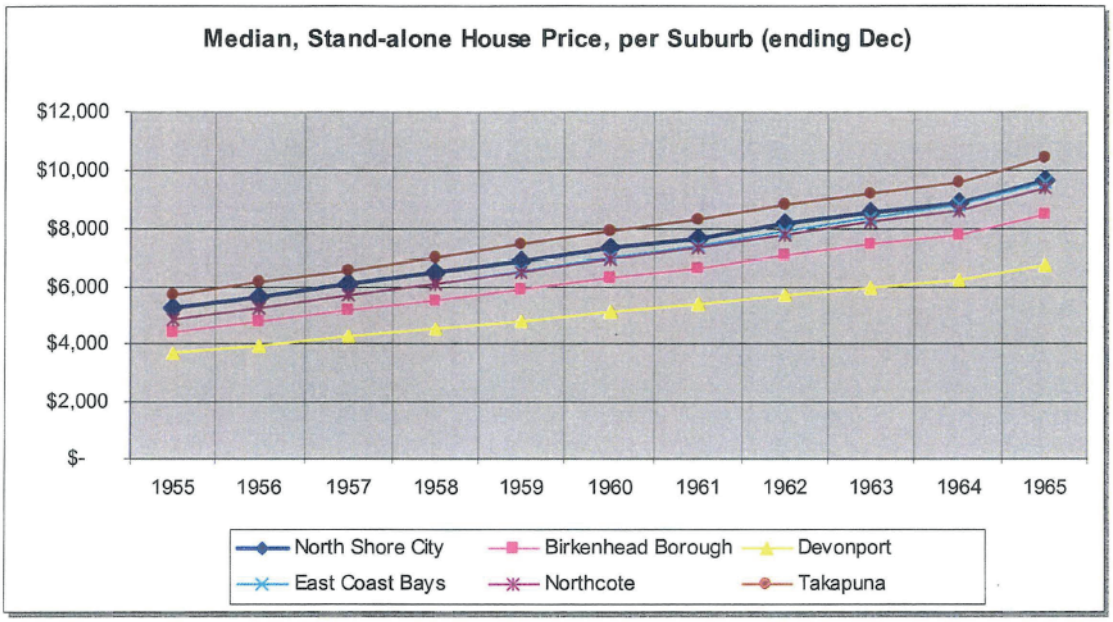
"Housing affordability relates to the ability of households to rent or purchase housing in an area of choice at a reasonable price, the capacity of households to meet ongoing housing costs, and the degree that discretionary income is available to achieve an acceptable standard of living. There is an underlying principle that expenditure on housing should leave enough residual income to cover other basic living costs, as well as allowing households to save for irregular but unavoidable costs such as medical and dental care." (Working Party on Affordability Issues, 2003, p.66).

"The notion of reasonable housing costs in relation to income: that is, housing costs that leave households with sufficient income to meet other basic needs such as food, clothing, transport, medical care and education." (Australia National Housing Strategy, 1991, ix).

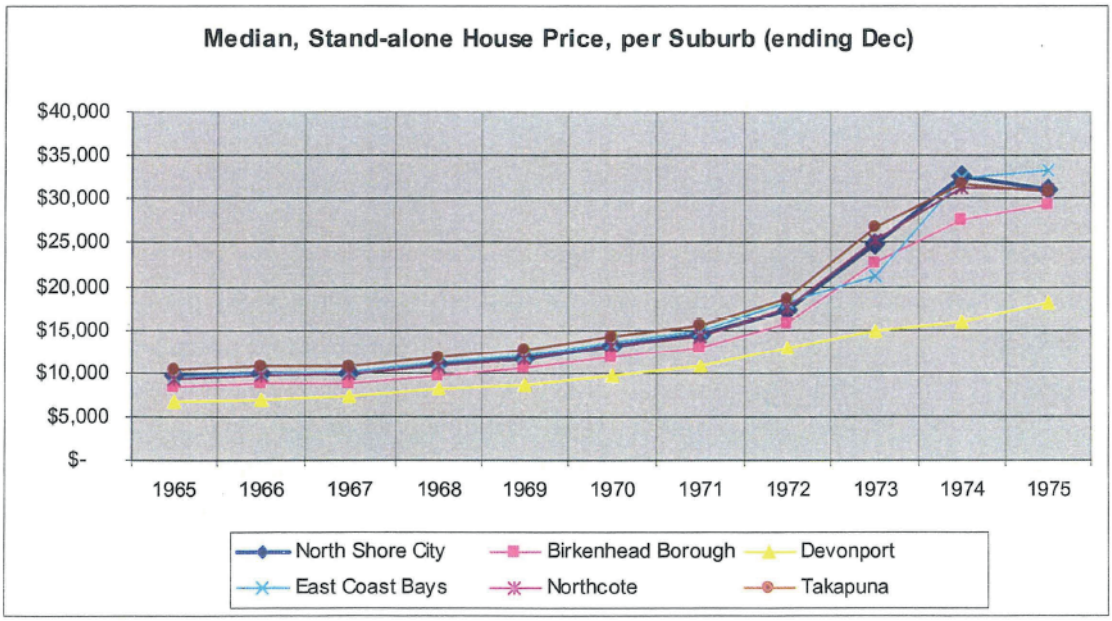
Appendix B

Median House Prices
North Shore, Birkenhead, Devonport, East Coast Bays, Takapuna

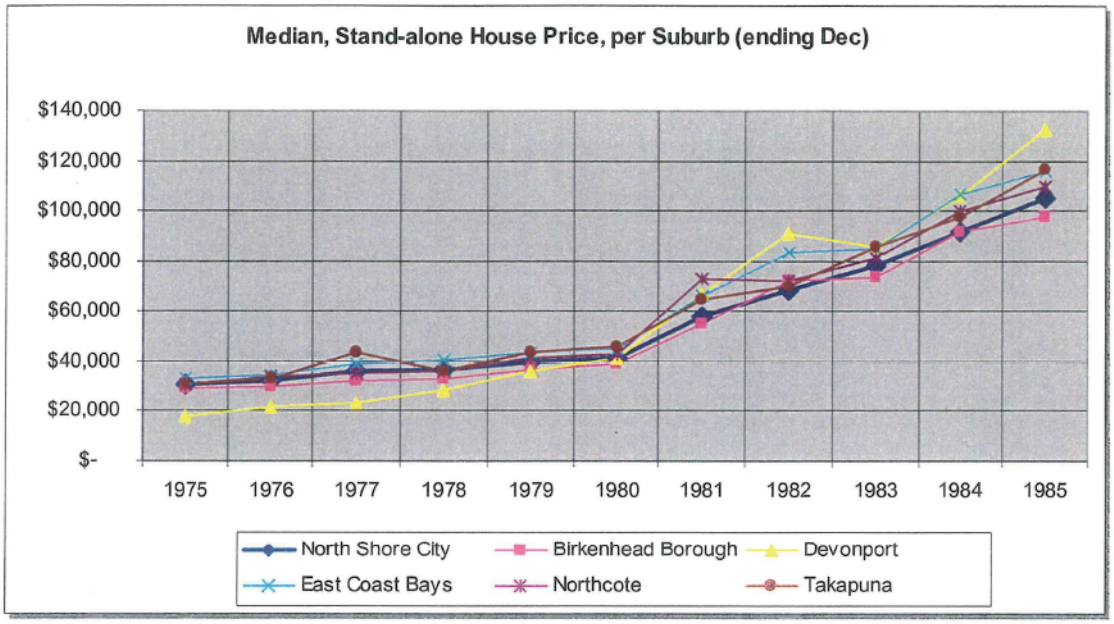
Median House Price Comparison, 1955-1965



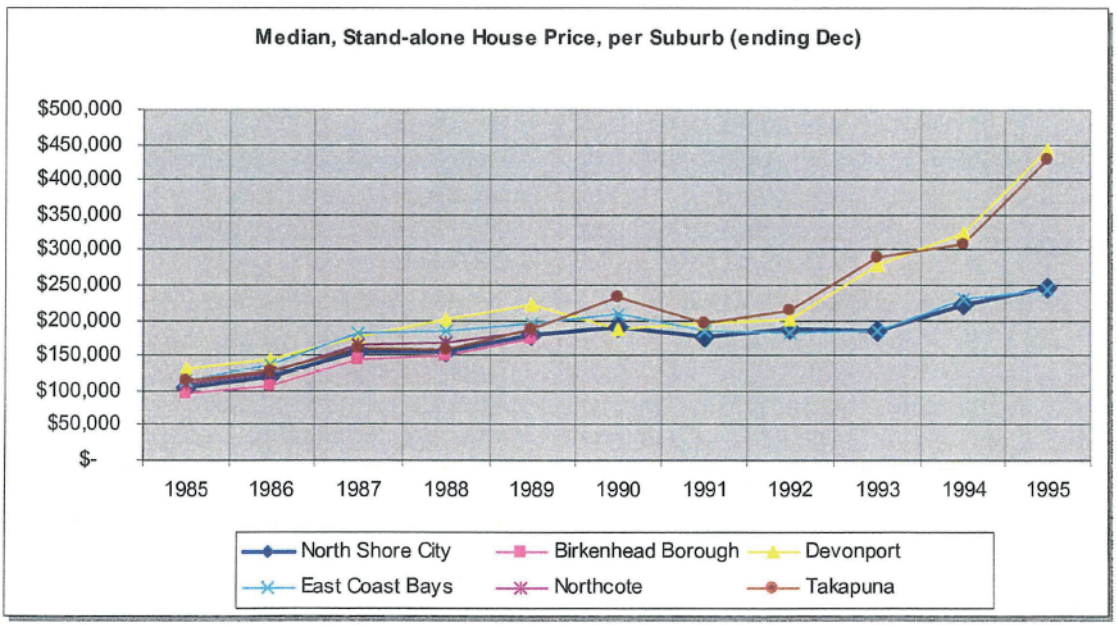
Median House Price Comparison, 1965-1965



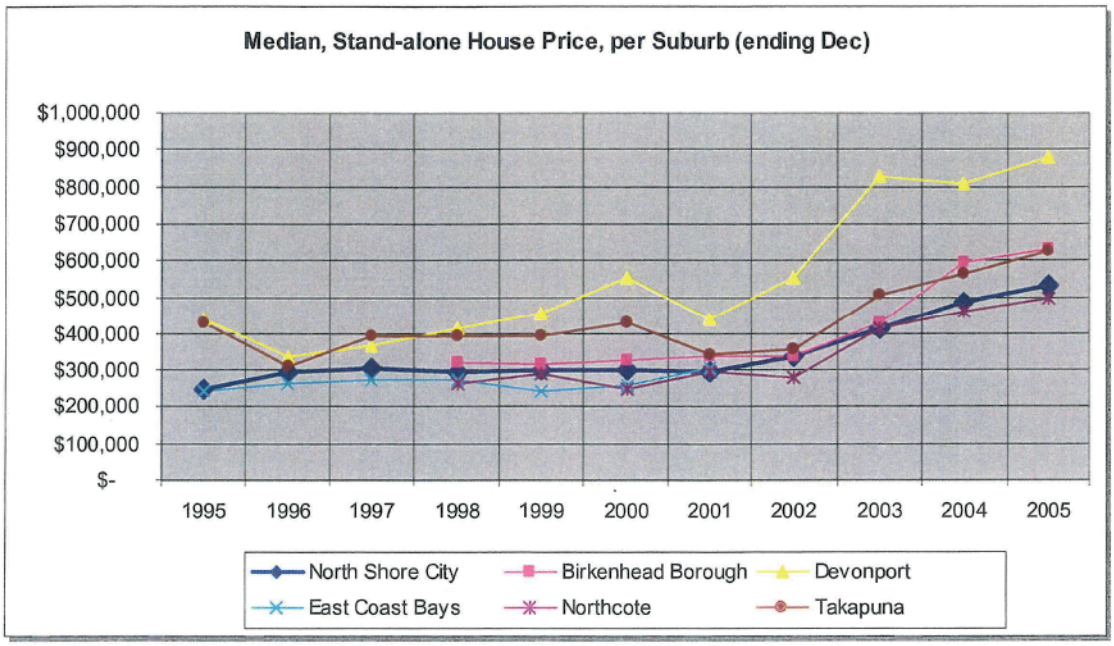
Median House Price Comparison, 1975-1985



Median House Price Comparison, 1985-1995



Median House Price Comparison, 1995-2005



Appendix C

RANK STRUCTURE OF THE ROYAL NEW ZEALAND NAVY and ABBREVIATIONS

Rating

Under Training

(Basic Core Trainee	-	BCT)
(Basic Branch Trainee	-	BBT)

Post Training

Able Rate	-	AB
Leading Hand	-	LH
Petty Officer	-	PO
Chief Petty Officer	-	CPO
Warrant Officer	-	WO

Officer

Under Training

(Midshipman	-	Mid)

Post Training

Ensign	-	ENS
Sub Lieutenant	-	S/LT
Lieutenant	-	LT
Lieutenant Commander	-	LTCDR
Commander	-	CDR
Captain	-	CAPT
Commodore	-	CDRE
Rear Admiral	-	RA
Admiral	-	A

Appendix D

Collation of Navy Salaries paid to Supply, Marine Engineering and Seaman Ratings and Officers 1955-2005

(Pages 133 & 134)

Rating, SUPPLY			1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
Rank	Age of Promotion	Age	SALARY										
Ordinary Rate	18.0	18	$ 906	$ 1,042	$ 1,214	$ 1,676	$ 3,126	$ 9,329	$ 14,282	$ 16,987	$ 15,383	$ 16,461	$ 21,764
Able Rate	19.1	19	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 9,976	$ 15,575	$ 19,079	$ 21,273	$ 26,323	$ 32,114
		20	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 9,976	$ 15,575	$ 19,079	$ 21,273	$ 26,323	$ 32,114
		21	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 9,976	$ 15,575	$ 19,079	$ 21,273	$ 26,323	$ 32,114
		22	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 9,976	$ 15,575	$ 19,079	$ 21,273	$ 26,323	$ 32,114
Leading Hand	23.0	23	$ 1,242	$ 1,428	$ 1,664	$ 2,297	$ 4,283	$ 11,599	$ 19,228	$ 24,309	$ 28,043	$ 32,782	$ 40,390
		24	$ 1,242	$ 1,428	$ 1,664	$ 2,297	$ 4,283	$ 11,599	$ 19,228	$ 24,309	$ 28,043	$ 32,782	$ 40,390
		25	$ 1,242	$ 1,428	$ 1,664	$ 2,297	$ 4,283	$ 11,599	$ 19,228	$ 24,309	$ 28,043	$ 32,782	$ 40,390
		26	$ 1,242	$ 1,428	$ 1,664	$ 2,297	$ 4,283	$ 11,599	$ 19,228	$ 24,309	$ 28,043	$ 32,782	$ 40,390
		27	$ 1,242	$ 1,428	$ 1,664	$ 2,297	$ 4,283	$ 11,599	$ 19,228	$ 24,309	$ 28,043	$ 32,782	$ 40,390
		28	$ 1,242	$ 1,428	$ 1,664	$ 2,297	$ 4,283	$ 11,599	$ 19,228	$ 24,309	$ 28,043	$ 32,782	$ 40,390
Petty Officer	28.8	29	$ 2,025	$ 2,329	$ 2,714	$ 3,747	$ 6,988	$ 15,849	$ 27,098	$ 30,062	$ 32,821	$ 37,875	$ 45,766
		30	$ 2,025	$ 2,329	$ 2,714	$ 3,747	$ 6,988	$ 15,849	$ 27,098	$ 30,062	$ 32,821	$ 37,875	$ 45,766
		31	$ 2,025	$ 2,329	$ 2,714	$ 3,747	$ 6,988	$ 15,849	$ 27,098	$ 30,062	$ 32,821	$ 37,875	$ 45,766
		32	$ 2,025	$ 2,329	$ 2,714	$ 3,747	$ 6,988	$ 15,849	$ 27,098	$ 30,062	$ 32,821	$ 37,875	$ 45,766
Chief Petty Officer	33.2	33	$ 2,198	$ 2,528	$ 2,945	$ 4,066	$ 7,583	$ 17,338	$ 30,237	$ 34,246	$ 36,810	$ 43,161	$ 52,167
		34	$ 2,198	$ 2,528	$ 2,945	$ 4,066	$ 7,583	$ 17,338	$ 30,237	$ 34,246	$ 36,810	$ 43,161	$ 52,167
Warrant Officer	35.1	35	$ 2,351	$ 2,704	$ 3,151	$ 4,350	$ 8,112	$ 19,104	$ 34,295	$ 37,907	$ 39,894	$ 50,672	$ 63,450
		36	$ 2,351	$ 2,704	$ 3,151	$ 4,350	$ 8,112	$ 19,104	$ 34,295	$ 37,907	$ 39,894	$ 50,672	$ 63,450
		37	$ 2,351	$ 2,704	$ 3,151	$ 4,350	$ 8,112	$ 19,104	$ 34,295	$ 37,907	$ 39,894	$ 50,672	$ 63,450
		38	$ 2,351	$ 2,704	$ 3,151	$ 4,350	$ 8,112	$ 19,104	$ 34,295	$ 37,907	$ 39,894	$ 50,672	$ 63,450
		39	$ 2,351	$ 2,704	$ 3,151	$ 4,350	$ 8,112	$ 19,104	$ 34,295	$ 37,907	$ 39,894	$ 50,672	$ 63,450
		40	$ 2,351	$ 2,704	$ 3,151	$ 4,350	$ 8,112	$ 19,104	$ 34,295	$ 37,907	$ 39,894	$ 50,672	$ 63,450

Rating, MARENG			1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
Rank	Age of Promotion	Age	SALARY										
Ordinary Rate	18.0	18	$ 906	$ 1,042	$ 1,214	$ 1,676	$ 3,126	$ 9,329	$ 14,282	$ 16,987	$ 15,421	$ 17,407	$ 21,230
Able Rate	19.2	19	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 8,572	$ 14,094	$ 19,079	$ 21,536	$ 27,246	$ 35,662
		20	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 8,572	$ 14,094	$ 19,079	$ 21,536	$ 27,246	$ 35,662
		21	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 8,572	$ 14,094	$ 19,079	$ 21,536	$ 27,246	$ 35,662
		22	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 8,572	$ 14,094	$ 19,079	$ 21,536	$ 27,246	$ 35,662
		23	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 8,572	$ 14,094	$ 19,079	$ 21,536	$ 27,246	$ 35,662
Leading Hand	23.5	24	$ 1,489	$ 1,712	$ 1,995	$ 2,755	$ 5,137	$ 11,599	$ 19,228	$ 26,401	$ 28,951	$ 36,257	$ 47,864
		25	$ 1,489	$ 1,712	$ 1,995	$ 2,755	$ 5,137	$ 11,599	$ 19,228	$ 26,401	$ 28,951	$ 36,257	$ 47,864
		26	$ 1,489	$ 1,712	$ 1,995	$ 2,755	$ 5,137	$ 11,599	$ 19,228	$ 26,401	$ 28,951	$ 36,257	$ 47,864
Petty Officer	27.2	27	$ 2,025	$ 2,329	$ 2,714	$ 3,747	$ 6,988	$ 15,849	$ 27,098	$ 32,677	$ 34,752	$ 42,677	$ 53,457
		28	$ 2,025	$ 2,329	$ 2,714	$ 3,747	$ 6,988	$ 15,849	$ 27,098	$ 32,677	$ 34,752	$ 42,677	$ 53,457
		29	$ 2,025	$ 2,329	$ 2,714	$ 3,747	$ 6,988	$ 15,849	$ 27,098	$ 32,677	$ 34,752	$ 42,677	$ 53,457
		30	$ 2,025	$ 2,329	$ 2,714	$ 3,747	$ 6,988	$ 15,849	$ 27,098	$ 32,677	$ 34,752	$ 42,677	$ 53,457
Chief Petty Officer	31.0	31	$ 2,198	$ 2,528	$ 2,945	$ 4,066	$ 7,583	$ 17,338	$ 30,237	$ 38,430	$ 40,872	$ 48,160	$ 58,971
		32	$ 2,198	$ 2,528	$ 2,945	$ 4,066	$ 7,583	$ 17,338	$ 30,237	$ 38,430	$ 40,872	$ 48,160	$ 58,971
		33	$ 2,198	$ 2,528	$ 2,945	$ 4,066	$ 7,583	$ 17,338	$ 30,237	$ 38,430	$ 40,872	$ 48,160	$ 58,971
		34	$ 2,198	$ 2,528	$ 2,945	$ 4,066	$ 7,583	$ 17,338	$ 30,237	$ 38,430	$ 40,872	$ 48,160	$ 58,971
Warrant Officer	35.0	35	$ 2,379	$ 2,736	$ 3,188	$ 4,401	$ 8,207	$ 19,104	$ 34,295	$ 44,183	$ 46,112	$ 55,420	$ 67,971
		36	$ 2,379	$ 2,736	$ 3,188	$ 4,401	$ 8,207	$ 19,104	$ 34,295	$ 44,183	$ 46,112	$ 55,420	$ 67,971
		37	$ 2,379	$ 2,736	$ 3,188	$ 4,401	$ 8,207	$ 19,104	$ 34,295	$ 44,183	$ 46,112	$ 55,420	$ 67,971
		38	$ 2,379	$ 2,736	$ 3,188	$ 4,401	$ 8,207	$ 19,104	$ 34,295	$ 44,183	$ 46,112	$ 55,420	$ 67,971
		39	$ 2,379	$ 2,736	$ 3,188	$ 4,401	$ 8,207	$ 19,104	$ 34,295	$ 44,183	$ 46,112	$ 55,420	$ 67,971
		40	$ 2,379	$ 2,736	$ 3,188	$ 4,401	$ 8,207	$ 19,104	$ 34,295	$ 44,183	$ 46,112	$ 55,420	$ 67,971

Rating, SEAMAN			1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
Rank	Age of Promotion	Age	SALARY										
Ordinary Rate	18.0	18	$ 906	$ 1,042	$ 1,214	$ 1,676	$ 3,126	$ 9,329	$ 14,282	$ 16,711	$ 15,288	$ 15,950	$ 20,335
Able Rate	19.2	19	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 10,057	$ 16,248	$ 18,211	$ 21,514	$ 27,038	$ 33,312
		20	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 10,057	$ 16,248	$ 18,211	$ 21,514	$ 27,038	$ 33,312
		21	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 10,057	$ 16,248	$ 18,211	$ 21,514	$ 27,038	$ 33,312
		22	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 10,057	$ 16,248	$ 18,211	$ 21,514	$ 27,038	$ 33,312
		23	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 10,057	$ 16,248	$ 18,211	$ 21,514	$ 27,038	$ 33,312
		24	$ 1,088	$ 1,251	$ 1,458	$ 2,013	$ 3,754	$ 10,057	$ 16,248	$ 18,211	$ 21,514	$ 27,038	$ 33,312
Leading Hand	24.5	25	$ 1,242	$ 1,428	$ 1,664	$ 2,297	$ 4,283	$ 11,599	$ 19,228	$ 21,711	$ 27,185	$ 33,160	$ 42,378
		26	$ 1,242	$ 1,428	$ 1,664	$ 2,297	$ 4,283	$ 11,599	$ 19,228	$ 21,711	$ 27,185	$ 33,160	$ 42,378
		27	$ 1,242	$ 1,428	$ 1,664	$ 2,297	$ 4,283	$ 11,599	$ 19,228	$ 21,711	$ 27,185	$ 33,160	$ 42,378
		28	$ 1,242	$ 1,428	$ 1,664	$ 2,297	$ 4,283	$ 11,599	$ 19,228	$ 21,711	$ 27,185	$ 33,160	$ 42,378
Petty Officer	29.2	29	$ 2,025	$ 2,329	$ 2,714	$ 3,747	$ 6,988	$ 15,849	$ 27,098	$ 27,211	$ 31,878	$ 38,232	$ 48,300
		30	$ 2,025	$ 2,329	$ 2,714	$ 3,747	$ 6,988	$ 15,849	$ 27,098	$ 27,211	$ 31,878	$ 38,232	$ 48,300
		31	$ 2,025	$ 2,329	$ 2,714	$ 3,747	$ 6,988	$ 15,849	$ 27,098	$ 27,211	$ 31,878	$ 38,232	$ 48,300
		32	$ 2,025	$ 2,329	$ 2,714	$ 3,747	$ 6,988	$ 15,849	$ 27,098	$ 27,211	$ 31,878	$ 38,232	$ 48,300
Chief Petty Officer	33.4	33	$ 2,198	$ 2,528	$ 2,945	$ 4,066	$ 7,583	$ 17,338	$ 30,237	$ 33,211	$ 38,441	$ 45,130	$ 54,651
		34	$ 2,198	$ 2,528	$ 2,945	$ 4,066	$ 7,583	$ 17,338	$ 30,237	$ 33,211	$ 38,441	$ 45,130	$ 54,651
		35	$ 2,198	$ 2,528	$ 2,945	$ 4,066	$ 7,583	$ 17,338	$ 30,237	$ 33,211	$ 38,441	$ 45,130	$ 54,651
		36	$ 2,198	$ 2,528	$ 2,945	$ 4,066	$ 7,583	$ 17,338	$ 30,237	$ 33,211	$ 38,441	$ 45,130	$ 54,651
Warrant Officer	37.0	37	$ 2,351	$ 2,704	$ 3,151	$ 4,350	$ 8,112	$ 19,104	$ 34,295	$ 38,711	$ 42,637	$ 50,766	$ 64,389
		38	$ 2,351	$ 2,704	$ 3,151	$ 4,350	$ 8,112	$ 19,104	$ 34,295	$ 38,711	$ 42,637	$ 50,766	$ 64,389
		39	$ 2,351	$ 2,704	$ 3,151	$ 4,350	$ 8,112	$ 19,104	$ 34,295	$ 38,711	$ 42,637	$ 50,766	$ 64,389
		40	$ 2,351	$ 2,704	$ 3,151	$ 4,350	$ 8,112	$ 19,104	$ 34,295	$ 38,711	$ 42,637	$ 50,766	$ 64,389

Officer, SUPPLY			1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
Rank	Age of Promotion	Age	SALARY										
Midshipman	18.0	18	$ 1,100	$ 1,265	$ 1,474	$ 2,035	$ 3,794	$ 11,009	$ 16,425	$ 19,025	$ 16,768	$ 17,438	$ 23,640
		19	$ 1,100	$ 1,265	$ 1,474	$ 2,035	$ 3,794	$ 11,009	$ 16,425	$ 19,025	$ 16,768	$ 17,438	$ 23,640
		20	$ 1,100	$ 1,265	$ 1,474	$ 2,035	$ 3,794	$ 11,009	$ 16,425	$ 19,025	$ 16,768	$ 17,438	$ 23,640
		21	$ 1,100	$ 1,265	$ 1,474	$ 2,035	$ 3,794	$ 11,009	$ 16,425	$ 19,025	$ 16,768	$ 17,438	$ 23,640
Sub Lieutenant	21.7	22	$ 1,785	$ 2,053	$ 2,392	$ 3,303	$ 6,159	$ 16,702	$ 25,970	$ 29,236	$ 26,553	$ 34,875	$ 45,480
		23	$ 1,785	$ 2,053	$ 2,392	$ 3,303	$ 6,159	$ 16,702	$ 25,970	$ 29,236	$ 26,553	$ 34,875	$ 45,480
Lieutenant	23.5	24	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,064	$ 43,383	$ 48,832	$ 60,500
		25	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,064	$ 43,383	$ 48,832	$ 60,500
		26	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,064	$ 43,383	$ 48,832	$ 60,500
		27	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,064	$ 43,383	$ 48,832	$ 60,500
		28	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,064	$ 43,383	$ 48,832	$ 60,500
		29	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,064	$ 43,383	$ 48,832	$ 60,500
Lt Commander	30.5	30	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 46,822	$ 51,093	$ 59,980	$ 73,395
		31	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 46,822	$ 51,093	$ 59,980	$ 73,395
		32	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 46,822	$ 51,093	$ 59,980	$ 73,395
		33	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 46,822	$ 51,093	$ 59,980	$ 73,395
		34	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 46,822	$ 51,093	$ 59,980	$ 73,395
		35	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 46,822	$ 51,093	$ 59,980	$ 73,395
		36	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 46,822	$ 51,093	$ 59,980	$ 73,395
Commander	36.8	37	$ 3,122	$ 3,590	$ 4,183	$ 5,775	$ 10,769	$ 28,955	$ 45,183	$ 58,719	$ 66,834	$ 73,594	$ 90,938
		38	$ 3,122	$ 3,590	$ 4,183	$ 5,775	$ 10,769	$ 28,955	$ 45,183	$ 58,719	$ 66,834	$ 73,594	$ 90,938
		39	$ 3,122	$ 3,590	$ 4,183	$ 5,775	$ 10,769	$ 28,955	$ 45,183	$ 58,719	$ 66,834	$ 73,594	$ 90,938
		40	$ 3,122	$ 3,590	$ 4,183	$ 5,775	$ 10,769	$ 28,955	$ 45,183	$ 58,719	$ 66,834	$ 73,594	$ 90,938

Officer, MARENG			1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
Rank	Age of Promotion	Age	SALARY										
Midshipman	18.0	18	$ 1,100	$ 1,265	$ 1,474	$ 2,035	$ 3,794	$ 11,195	$ 16,825	$ 19,739	$ 17,672	$ 19,688	$ 22,909
		19	$ 1,100	$ 1,265	$ 1,474	$ 2,035	$ 3,794	$ 11,195	$ 16,825	$ 19,739	$ 17,672	$ 19,688	$ 22,909
		20	$ 1,100	$ 1,265	$ 1,474	$ 2,035	$ 3,794	$ 11,195	$ 16,825	$ 19,739	$ 17,672	$ 19,688	$ 22,909
		21	$ 1,100	$ 1,265	$ 1,474	$ 2,035	$ 3,794	$ 11,195	$ 16,825	$ 19,739	$ 17,672	$ 19,688	$ 22,909
Sub Lieutenant	21.6	22	$ 1,785	$ 2,053	$ 2,392	$ 3,303	$ 6,159	$ 16,702	$ 25,970	$ 28,718	$ 31,823	$ 40,587	$ 44,329
		23	$ 1,785	$ 2,053	$ 2,392	$ 3,303	$ 6,159	$ 16,702	$ 25,970	$ 28,718	$ 31,823	$ 40,587	$ 44,329
Lieutenant	23.6	24	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,580	$ 43,960	$ 48,916	$ 64,881
		25	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,580	$ 43,960	$ 48,916	$ 64,881
		26	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,580	$ 43,960	$ 48,916	$ 64,881
		27	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,580	$ 43,960	$ 48,916	$ 64,881
		28	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,580	$ 43,960	$ 48,916	$ 64,881
		29	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,580	$ 43,960	$ 48,916	$ 64,881
		30	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 39,580	$ 43,960	$ 48,916	$ 64,881
Lt Commander	30.8	31	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 50,442	$ 55,102	$ 63,543	$ 76,838
		32	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 50,442	$ 55,102	$ 63,543	$ 76,838
		33	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 50,442	$ 55,102	$ 63,543	$ 76,838
		34	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 50,442	$ 55,102	$ 63,543	$ 76,838
		35	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 50,442	$ 55,102	$ 63,543	$ 76,838
		36	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 50,442	$ 55,102	$ 63,543	$ 76,838
		37	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 50,442	$ 55,102	$ 63,543	$ 76,838
Commander	37.57	38	$ 3,122	$ 3,590	$ 4,183	$ 5,775	$ 10,769	$ 28,955	$ 45,183	$ 59,752	$ 65,141	$ 76,018	$ 91,328
		39	$ 3,122	$ 3,590	$ 4,183	$ 5,775	$ 10,769	$ 28,955	$ 45,183	$ 59,752	$ 65,141	$ 76,018	$ 91,328
		40	$ 3,122	$ 3,590	$ 4,183	$ 5,775	$ 10,769	$ 28,955	$ 45,183	$ 59,752	$ 65,141	$ 76,018	$ 91,328

Officer, SEAMAN			1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
	Age of Promotion	Age	SALARY										
Midshipman	18.0	18	$ 1,100	$ 1,265	$ 1,474	$ 2,035	$ 3,794	$ 11,265	$ 17,227	$ 20,136	$ 18,383	$ 19,219	$ 25,650
		19	$ 1,100	$ 1,265	$ 1,474	$ 2,035	$ 3,794	$ 11,265	$ 17,227	$ 20,136	$ 18,383	$ 19,219	$ 25,650
		20	$ 1,100	$ 1,265	$ 1,474	$ 2,035	$ 3,794	$ 11,265	$ 17,227	$ 20,136	$ 18,383	$ 19,219	$ 25,650
		21	$ 1,100	$ 1,265	$ 1,474	$ 2,035	$ 3,794	$ 11,265	$ 17,227	$ 20,136	$ 18,383	$ 19,219	$ 25,650
Sub Lieutenant	21.6	22	$ 1,785	$ 2,053	$ 2,392	$ 3,303	$ 6,159	$ 16,702	$ 25,970	$ 28,732	$ 28,301	$ 38,094	$ 45,400
Lieutenant	23.3	23	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 38,261	$ 41,159	$ 49,681	$ 63,000
		24	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 38,261	$ 41,159	$ 49,681	$ 63,000
		25	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 38,261	$ 41,159	$ 49,681	$ 63,000
		26	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 38,261	$ 41,159	$ 49,681	$ 63,000
		27	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 38,261	$ 41,159	$ 49,681	$ 63,000
		28	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 38,261	$ 41,159	$ 49,681	$ 63,000
		29	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 38,261	$ 41,159	$ 49,681	$ 63,000
		30	$ 2,243	$ 2,580	$ 3,006	$ 4,150	$ 7,740	$ 18,768	$ 28,744	$ 38,261	$ 41,159	$ 49,681	$ 63,000
Lt Commander	31.3	31	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 45,750	$ 53,691	$ 63,563	$ 81,174
		32	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 45,750	$ 53,691	$ 63,563	$ 81,174
		33	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 45,750	$ 53,691	$ 63,563	$ 81,174
		34	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 45,750	$ 53,691	$ 63,563	$ 81,174
		35	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 45,750	$ 53,691	$ 63,563	$ 81,174
		36	$ 2,685	$ 3,087	$ 3,597	$ 4,967	$ 9,262	$ 25,937	$ 39,318	$ 45,750	$ 53,691	$ 63,563	$ 81,174
Commander	36.7	37	$ 3,122	$ 3,590	$ 4,183	$ 5,775	$ 10,769	$ 28,955	$ 45,183	$ 56,782	$ 67,870	$ 77,119	$ 94,376
		38	$ 3,122	$ 3,590	$ 4,183	$ 5,775	$ 10,769	$ 28,955	$ 45,183	$ 56,782	$ 67,870	$ 77,119	$ 94,376
		39	$ 3,122	$ 3,590	$ 4,183	$ 5,775	$ 10,769	$ 28,955	$ 45,183	$ 56,782	$ 67,870	$ 77,119	$ 94,376
		40	$ 3,122	$ 3,590	$ 4,183	$ 5,775	$ 10,769	$ 28,955	$ 45,183	$ 56,782	$ 67,870	$ 77,119	$ 94,376

Appendix E

Data Analysis Worksheet for the Household construct and synthetic cohort model against Social condition 1955-2005

(Pages 136 & 137)

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5	COLUMN 6	COLUMN 7	COLUMN 8	COLUMN 9	COLUMN 10
YEARS	Proxy Household	Married?	Married Age? (Average age between male and female median)	Female age at first birth?	Age at which family completes?	Working Mother/Wife?	Age at which Wife Returned to work	Age at which housing considered	Number of persons in dwelling?
1950	Single	No	N/A	N/A	N/A	N/A	N/A	21	1
	Couple	Yes	20	N/A	20	No	N/A	21	2
	Couple < 3 children	Yes	20	26	28	No		21	4
	Couple > 2 children	Yes	20	26	30	No		21	5
1955	Single	No	N/A	N/A	N/A	N/A	N/A	22	1
	Couple	Yes	21	N/A	21	No	N/A	22	2
	Couple < 3 children	Yes	21	26	28	No		22	3.9
	Couple > 2 children	Yes	21	26	30	No		22	4.9
1960	Single	No	N/A	N/A	N/A	N/A	N/A	22	1
	Couple	Yes	21	N/A	21	Yes	N/A	22	2
	Couple < 3 children	Yes	21	26	28	No		22	3.9
	Couple > 2 children	Yes	21	26	30	No		22	4.9
1965	Single	No	N/A	N/A	N/A	N/A	N/A	23	1
	Couple	Yes	22	N/A	22	Yes	N/A	23	2
	Couple < 3 children	Yes	22	26	28	No		23	3.8
	Couple > 2 children	Yes	22	26	30	No		23	4.8
1970	Single	No	N/A	N/A	N/A	N/A	N/A	24	1
	Couple	Yes	22	N/A	22	Yes	N/A	24	2
	Couple < 3 children	Yes	22	25	27	No		24	3.6
	Couple > 2 children	Yes	22	25	29	No		24	4.6
1975	Single	No	N/A	N/A	N/A	N/A	N/A	25	1
	Couple	Yes	23	N/A	23	Yes	N/A	25	2
	Couple < 3 children	Yes	23	25	27	Yes	29	25	3.6
	Couple > 2 children	Yes	23	25	29	No		25	4.6
1980	Single	No	N/A	N/A	N/A	N/A	N/A	26	1
	Couple	Yes	24	N/A	24	Yes	N/A	26	2
	Couple < 3 children	Yes	24	26	27	Yes	29	26	3.2
	Couple > 2 children	Yes	24	26	29	No		26	4.2
1985	Single	No	N/A	N/A	N/A	N/A	N/A	28	1
	Couple	Yes	26	N/A	26	Yes	N/A	28	2
	Couple < 3 children	Yes	26	27	28	Yes	30	28	3.2
	Couple > 2 children	Yes	26	27	30	No		28	4.2
1990	Single	No	N/A	N/A	N/A	N/A	N/A	30	1
	Couple	Yes	27	N/A	27	Yes	N/A	30	2
	Couple < 3 children	Yes	27	28	29	Yes	31	30	2.9
	Couple > 2 children	Yes	27	28	31	Yes	33	30	3.9
1995	Single	No	N/A	N/A	N/A	N/A	N/A	31	1
	Couple	Yes	28	N/A	28	Yes	N/A	31	2
	Couple < 3 children	Yes	28	29	31	Yes	33	31	2.8
	Couple > 2 children	Yes	28	29	33	Yes	35	31	3.8
2000	Single	No	N/A	N/A	N/A	N/A	N/A	33	1
	Couple	Yes	29	N/A	29	Yes	N/A	33	2
	Couple < 3 children	Yes	29	30	31	Yes	33	33	2.8
	Couple > 2 children	Yes	29	30	33	Yes	35	33	3.8
2005	Single	No	N/A	N/A	N/A	N/A	N/A	34	1
	Couple	Yes	30	N/A	30	Yes	N/A	34	2
	Couple < 3 children	Yes	30	30	32	Yes	34	34	2.8
	Couple > 2 children	Yes	30	30	33	Yes	35	34	3.8

COLUMN 1	COLUMN 11					COLUMN 12	COLUMN 13	COLUMN 14	COLUMN 15			
YEARS	Full-time earnings per person Average Weekly Wage	Average full-time earnings per person Annualised Rate	Average part-time earnings per person (Assessed)	Full-time earnings per Male Median Annual Wage (pre-tax)	Full-time earnings per Female Median Annual Wage (pre-tax)	Earnings by Service-person	Tax Rate	CPI	Weekly household expenditure	Weekly household expenditure after removing Navy support @ 29%	Annual household expenditure with Navy support	Annual household expenditure without Navy support
1950	$ 16.83	$ 874.90	$ 6.73	$ 794.07	$ 523.84	The earnings/ expenditure/ saving relationship, for each of the Service personnel, is provided at Annex xx.	9.4%	43	$ 13.72	$ 13.72	$ 713.38	$ 713.38
									$ 27.52	$ 27.52	$ 1,431.04	$ 1,431.04
									$ 38.77	$ 38.77	$ 2,015.96	$ 2,015.96
									$ 39.66	$ 39.66	$ 2,062.10	$ 2,062.10
1955	$ 26.20	$ 1,362.40	$ 10.48	$ 1,117.40	$ 757.40		10.7%	58	$ 18.50	$ 18.50	$ 962.24	$ 962.24
									$ 37.12	$ 37.12	$ 1,930.24	$ 1,930.24
									$ 52.29	$ 52.29	$ 2,719.20	$ 2,719.20
									$ 53.49	$ 53.49	$ 2,781.44	$ 2,781.44
1960	$ 28.99	$ 1,507.50	$ 11.60	$ 1,441.20	$ 999.00		13.4%	67	$ 21.38	$ 21.38	$ 1,111.55	$ 1,111.55
									$ 42.88	$ 42.88	$ 2,229.76	$ 2,229.76
									$ 60.41	$ 60.41	$ 3,141.15	$ 3,141.15
									$ 61.79	$ 61.79	$ 3,213.05	$ 3,213.05
1965	$ 38.83	$ 2,019.11	$ 15.53	$ 1,831.60	$ 1,317.60		13.1%	76	$ 24.25	$ 24.25	$ 1,260.86	$ 1,260.86
									$ 48.64	$ 48.64	$ 2,529.28	$ 2,529.28
									$ 68.52	$ 68.52	$ 3,563.09	$ 3,563.09
									$ 70.09	$ 70.09	$ 3,644.65	$ 3,644.65
1970	$ 54.08	$ 2,812.00	$ 21.63	$ 2,741.80	$ 2,045.80		15.2%	97	$ 30.95	$ 30.95	$ 1,609.26	$ 1,609.26
									$ 62.08	$ 62.08	$ 3,228.16	$ 3,228.16
									$ 87.45	$ 87.45	$ 4,547.63	$ 4,547.63
									$ 89.46	$ 89.46	$ 4,651.72	$ 4,651.72
1975	$ 104.21	$ 5,418.70	$ 41.68	$ 5,153.80	$ 4,411.00		22.9%	157	$ 50.09	$ 50.09	$ 2,604.68	$ 2,604.68
									$ 100.48	$ 100.48	$ 5,224.96	$ 5,224.96
									$ 141.55	$ 141.55	$ 7,360.60	$ 7,360.60
									$ 144.79	$ 144.79	$ 7,529.08	$ 7,529.08
1980	$ 215.15	$ 11,188.00	$ 86.06	$ 10,280.20	$ 9,186.60		26.4%	313	$ 93.62	$ 93.62	$ 4,868.24	$ 4,868.24
									$ 180.89	$ 180.89	$ 9,406.28	$ 9,406.28
									$ 241.12	$ 241.12	$ 12,538.24	$ 12,538.24
									$ 263.82	$ 263.82	$ 13,718.64	$ 13,718.64
1985	$ 347.52	$ 18,071.00	$ 139.01	$ 16,761.60	$ 15,463.00		27.6%	552	$ 262.37	$ 262.37	$ 13,643.24	$ 13,643.24
									$ 461.00	$ 461.00	$ 23,972.00	$ 23,972.00
									$ 494.45	$ 494.45	$ 25,711.40	$ 25,711.40
									$ 438.01	$ 438.01	$ 22,776.52	$ 22,776.52
1990	$ 521.25	$ 27,105.00	$ 208.50	$ 19,811.20	$ 19,305.60		24.8%	864	$ 480.18	$ 480.18	$ 24,969.36	$ 24,969.36
									$ 711.78	$ 711.78	$ 37,012.56	$ 37,012.56
									$ 716.44	$ 716.44	$ 37,254.88	$ 37,254.88
									$ 666.82	$ 666.82	$ 34,674.64	$ 34,674.64
1995	$ 525.00	$ 27,300.00	$ 210.00	$ 22,096.00	$ 21,768.00		24.9%	957	$ 507.90	$ 507.90	$ 26,410.80	$ 26,410.80
									$ 718.10	$ 718.10	$ 37,341.20	$ 37,341.20
									$ 795.20	$ 795.20	$ 41,350.40	$ 41,350.40
									$ 729.70	$ 729.70	$ 37,944.40	$ 37,944.40
2000	$ 632.00	$ 32,864.00	$ 252.80	$ 24,432.00	$ 23,590.80		24.2%	1028	$ 545.58	$ 545.58	$ 28,370.22	$ 28,370.22
									$ 771.38	$ 771.38	$ 40,111.55	$ 40,111.55
									$ 854.20	$ 854.20	$ 44,418.19	$ 44,418.19
									$ 783.84	$ 783.84	$ 40,759.50	$ 40,759.50
2005	$ 720.70	$ 37,476.00	$ 288.28	$ 27,575.00	$ 26,503.20		23.4%	1153	$ 612.08	$ 612.08	$ 31,828.19	$ 31,828.19
									$ 865.40	$ 865.40	$ 45,000.63	$ 45,000.63
									$ 958.31	$ 958.31	$ 49,832.20	$ 49,832.20
									$ 879.38	$ 879.38	$ 45,727.56	$ 45,727.56

Appendix F

Earning life-cycle exhibition of military synthetic cohorts and expenditure and saving profiles across four household constructs. 1955, 1975, 1990

(Pages 139-144)

SEAMAN

Annual Rental - Service assessed			49.34	53.82	58.30	62.78	67.27	72.51	75.90	80.70	84.65	88.31	95.65	99.19	99.43	109.20	116.68	130.71	142.43	171.83	247.26	323.73	307.40
Annual Barrack charge (25% of Rental)			12.33	13.45	14.58	15.70	16.82	18.13	18.97	20.17	21.16	22.08	23.91	24.80	24.86	27.30	29.17	32.68	35.61	42.96	61.82	80.93	76.85
1955	YEARS		1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
	Age		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
		Median house price											$ 5,267										
Single	Sailor	Income	$ 809	$ 972	$ 1,000	$ 1,028	$ 1,056	$ 1,083	$ 1,160	$ 1,236	$ 1,306	$ 1,376	$ 1,446	$ 2,359	$ 2,632	$ 2,904	$ 3,177	$ 3,450	$ 3,510	$ 3,570	$ 3,630	$ 3,691	$ 6,254
		Expenditure	$ 683	$ 704	$ 726	$ 810	$ 835	$ 789	$ 810	$ 832	$ 853	$ 874	$ 895	$ 945	$ 994	$ 1,044	$ 1,093	$ 1,143	$ 1,284	$ 1,425	$ 1,567	$ 1,708	$ 1,849
		Saving	$ 126	$ 394	$ 668	$ 886	$ 1,107	$ 1,401	$ 1,750	$ 2,155	$ 2,608	$ 3,110	$ 3,661	$ 5,075	$ 6,712	$ 8,573	$ 10,657	$ 12,964	$ 15,190	$ 17,335	$ 19,399	$ 21,381	$ 25,785
	Officer	Income	$ 982	$ 1,336	$ 1,690	$ 2,044	$ 2,398	$ 2,234	$ 2,310	$ 2,385	$ 2,461	$ 2,537	$ 2,613	$ 2,784	$ 2,955	$ 3,126	$ 3,670	$ 4,214	$ 4,385	$ 4,556	$ 4,728	$ 4,899	$ 8,302
		Expenditure	$ 683	$ 704	$ 726	$ 810	$ 835	$ 789	$ 810	$ 832	$ 853	$ 874	$ 895	$ 945	$ 994	$ 1,044	$ 1,093	$ 1,143	$ 1,284	$ 1,425	$ 1,567	$ 1,708	$ 1,849
		Saving	$ 299	$ 931	$ 1,896	$ 3,131	$ 4,693	$ 6,138	$ 7,637	$ 9,191	$ 10,799	$ 12,462	$ 14,179	$ 16,019	$ 17,980	$ 20,062	$ 22,639	$ 25,710	$ 28,812	$ 31,943	$ 35,104	$ 38,295	$ 44,748
Couple	Sailor	Income	$ 809	$ 972	$ 1,000	$ 1,028	$ 1,056	$ 1,083	$ 1,160	$ 1,236	$ 1,306	$ 1,376	$ 1,446	$ 2,359	$ 2,632	$ 2,904	$ 3,177	$ 3,450	$ 3,510	$ 3,570	$ 3,630	$ 3,691	$ 6,254
		Expenditure	$ 683	$ 704	$ 726	$ 1,191	$ 1,656	$ 1,656	$ 1,703	$ 1,750	$ 1,797	$ 1,844	$ 1,891	$ 1,998	$ 2,104	$ 2,210	$ 2,316	$ 2,423	$ 2,742	$ 3,060	$ 3,379	$ 3,698	$ 4,017
		Saving	$ 126	$ 394	$ 668	$ 505	-$ 95	-$ 667	-$ 1,210	-$ 1,724	-$ 2,215	-$ 2,683	-$ 3,129	-$ 2,768	-$ 2,240	-$ 1,546	-$ 685	$ 342	$ 1,110	$ 1,620	$ 1,871	$ 1,863	$ 4,100
	Officer	Income	$ 982	$ 1,336	$ 1,690	$ 2,044	$ 2,398	$ 2,234	$ 2,310	$ 2,385	$ 2,461	$ 2,537	$ 2,613	$ 2,784	$ 2,955	$ 3,126	$ 3,670	$ 4,214	$ 4,385	$ 4,556	$ 4,728	$ 4,899	$ 8,302
		Expenditure	$ 683	$ 704	$ 726	$ 1,191	$ 1,656	$ 1,656	$ 1,703	$ 1,750	$ 1,797	$ 1,844	$ 1,891	$ 1,998	$ 2,104	$ 2,210	$ 2,316	$ 2,423	$ 2,742	$ 3,060	$ 3,379	$ 3,698	$ 4,017
		Saving	$ 299	$ 931	$ 1,896	$ 2,749	$ 3,492	$ 4,070	$ 4,677	$ 5,312	$ 5,976	$ 6,669	$ 7,390	$ 8,176	$ 9,027	$ 9,944	$ 11,297	$ 13,088	$ 14,732	$ 16,228	$ 17,576	$ 18,777	$ 23,062
Couple < 3 children	Sailor	Income	$ 809	$ 972	$ 1,000	$ 1,028	$ 1,056	$ 1,083	$ 1,160	$ 1,236	$ 1,306	$ 1,376	$ 1,446	$ 2,359	$ 2,632	$ 2,904	$ 3,177	$ 3,450	$ 3,510	$ 3,570	$ 3,630	$ 3,691	$ 6,254
		Expenditure	$ 683	$ 704	$ 726	$ 1,191	$ 1,656	$ 1,656	$ 1,703	$ 1,750	$ 2,188	$ 2,625	$ 2,625	$ 2,772	$ 2,919	$ 3,066	$ 3,213	$ 3,360	$ 3,794	$ 4,229	$ 4,664	$ 5,099	$ 5,533
		Saving	$ 126	$ 394	$ 668	$ 505	-$ 95	-$ 667	-$ 1,210	-$ 1,724	-$ 2,606	-$ 3,855	-$ 5,035	-$ 5,448	-$ 5,735	-$ 5,897	-$ 5,933	-$ 5,843	-$ 6,127	-$ 6,786	-$ 7,819	-$ 9,227	-$ 8,507
	Officer	Income	$ 982	$ 1,336	$ 1,690	$ 2,044	$ 2,398	$ 2,234	$ 2,310	$ 2,385	$ 2,461	$ 2,537	$ 2,613	$ 2,784	$ 2,955	$ 3,126	$ 3,670	$ 4,214	$ 4,385	$ 4,556	$ 4,728	$ 4,899	$ 8,302
		Expenditure	$ 683	$ 704	$ 726	$ 1,191	$ 1,656	$ 1,656	$ 1,703	$ 1,750	$ 2,188	$ 2,625	$ 2,625	$ 2,772	$ 2,919	$ 3,066	$ 3,213	$ 3,360	$ 3,794	$ 4,229	$ 4,664	$ 5,099	$ 5,533
		Saving	$ 299	$ 931	$ 1,896	$ 2,749	$ 3,492	$ 4,070	$ 4,677	$ 5,312	$ 5,585	$ 5,497	$ 5,484	$ 5,496	$ 5,532	$ 5,593	$ 6,050	$ 6,904	$ 7,495	$ 7,822	$ 7,886	$ 7,687	$ 10,455
Couple > 2 children	Sailor	Income	$ 809	$ 972	$ 1,000	$ 1,028	$ 1,056	$ 1,083	$ 1,160	$ 1,236	$ 1,306	$ 1,376	$ 1,446	$ 2,359	$ 2,632	$ 2,904	$ 3,177	$ 3,450	$ 3,510	$ 3,570	$ 3,630	$ 3,691	$ 6,254
		Expenditure	$ 683	$ 704	$ 726	$ 1,191	$ 1,656	$ 1,656	$ 1,703	$ 1,750	$ 2,188	$ 2,625	$ 2,625	$ 2,772	$ 2,938	$ 2,896	$ 3,165	$ 3,433	$ 3,877	$ 4,321	$ 4,765	$ 5,209	$ 5,653
		Saving	$ 126	$ 394	$ 668	$ 505	-$ 95	-$ 667	-$ 1,210	-$ 1,724	-$ 2,606	-$ 3,855	-$ 5,035	-$ 5,448	-$ 5,754	-$ 5,746	-$ 5,734	-$ 5,717	-$ 6,085	-$ 6,836	-$ 7,971	-$ 9,489	-$ 8,889
	Officer	Income	$ 982	$ 1,336	$ 1,690	$ 2,044	$ 2,398	$ 2,234	$ 2,310	$ 2,385	$ 2,461	$ 2,537	$ 2,613	$ 2,784	$ 2,955	$ 3,126	$ 3,670	$ 4,214	$ 4,385	$ 4,556	$ 4,728	$ 4,899	$ 8,302
		Expenditure	$ 683	$ 704	$ 726	$ 1,191	$ 1,656	$ 1,656	$ 1,703	$ 1,750	$ 2,188	$ 2,625	$ 2,625	$ 2,772	$ 3,242	$ 3,712	$ 4,182	$ 4,652	$ 3,877	$ 4,321	$ 4,765	$ 5,209	$ 7,529
		Saving	$ 299	$ 931	$ 1,896	$ 2,749	$ 3,492	$ 4,070	$ 4,677	$ 5,312	$ 5,585	$ 5,497	$ 5,484	$ 5,496	$ 5,209	$ 4,623	$ 4,112	$ 3,673	$ 4,181	$ 4,416	$ 4,379	$ 4,069	$ 4,842

SEAMAN

Annual Rental - Service assessed			$ 307.4	$ 321.6	$ 360.4	$ 367.5	$ 395.3	$ 406.4	$ 573.0	$ 681.9	$ 772.2	$ 909.5	$ 1,047.3	$ 1,197.9	$ 1,546.8	$ 1,545.8	$ 1,785.5	$ 1,878.3	$ 1,756.5	$ 1,852.2	$ 1,828.8	$ 2,207.9	$ 2,442.2
Annual Barrack charge (25% of Rental)			$ 76.9	$ 80.4	$ 90.1	$ 91.9	$ 98.8	$ 101.6	$ 143.3	$ 170.5	$ 193.0	$ 227.4	$ 261.8	$ 299.5	$ 386.7	$ 386.4	$ 446.4	$ 469.6	$ 439.1	$ 463.0	$ 457.2	$ 552.0	$ 610.6
1975	YEAR		1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
	Age		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
		Median house price										$ 91,826											
Single	Sailor	Income	$ 2,410	$ 2,894	$ 4,021	$ 5,148	$ 6,275	$ 7,402	$ 7,969	$ 8,537	$ 10,332	$ 12,127	$ 13,921	$ 19,619	$ 20,958	$ 22,297	$ 23,636	$ 24,975	$ 26,009	$ 27,043	$ 28,077	$ 29,111	$ 32,020
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 3,558	$ 5,028	$ 6,192	$ 8,676	$ 11,159	$ 13,643	$ 15,908	$ 18,174	$ 20,439	$ 22,704	$ 24,969	$ 25,258	$ 25,546	$ 25,834	$ 26,123	$ 26,411
		Saving	$ 484	$ 1,125	$ 2,567	$ 4,810	$ 7,853	$ 11,697	$ 14,638	$ 16,983	$ 18,640	$ 19,607	$ 19,885	$ 23,595	$ 26,379	$ 28,236	$ 29,168	$ 29,173	$ 29,924	$ 31,420	$ 33,663	$ 36,651	$ 42,260
	Officer	Income	$ 2,925	$ 3,979	$ 5,032	$ 6,086	$ 7,140	$ 13,813	$ 15,213	$ 16,612	$ 18,012	$ 19,411	$ 20,810	$ 20,810	$ 20,810	$ 28,466	$ 28,466	$ 34,404	$ 36,478	$ 38,552	$ 40,626	$ 42,700	$ 50,971
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 3,558	$ 5,028	$ 6,192	$ 8,676	$ 11,159	$ 13,643	$ 15,908	$ 18,174	$ 20,439	$ 22,704	$ 24,969	$ 25,258	$ 25,546	$ 25,834	$ 26,123	$ 26,411
		Saving	$ 999	$ 2,725	$ 5,178	$ 8,359	$ 12,268	$ 22,523	$ 32,708	$ 43,128	$ 52,464	$ 60,716	$ 67,883	$ 72,785	$ 75,422	$ 83,449	$ 89,211	$ 98,646	$ 109,866	$ 122,872	$ 137,664	$ 154,241	$ 178,801
Couple	Sailor	Income	$ 2,410	$ 2,894	$ 4,021	$ 5,148	$ 6,275	$ 14,163	$ 15,508	$ 17,037	$ 19,792	$ 22,547	$ 25,116	$ 31,759	$ 33,557	$ 35,355	$ 37,153	$ 39,492	$ 41,003	$ 42,381	$ 43,759	$ 45,137	$ 48,369
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 13,840	$ 17,217	$ 20,595	$ 23,972	$ 26,580	$ 29,188	$ 31,796	$ 34,404	$ 37,013	$ 37,078	$ 37,144	$ 37,210	$ 37,275	$ 37,341
		Saving	$ 484	$ 1,125	$ 2,567	$ 4,810	$ 7,853	$ 14,931	$ 19,978	$ 23,175	$ 25,749	$ 27,702	$ 28,846	$ 34,025	$ 38,393	$ 41,952	$ 44,701	$ 47,181	$ 51,106	$ 56,343	$ 62,893	$ 70,754	$ 81,782
	Officer	Income	$ 2,925	$ 3,979	$ 5,032	$ 6,086	$ 7,140	$ 20,575	$ 22,752	$ 25,112	$ 27,471	$ 29,831	$ 32,006	$ 32,951	$ 33,410	$ 41,525	$ 41,984	$ 48,922	$ 51,473	$ 53,891	$ 56,308	$ 58,726	$ 67,319
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 13,840	$ 17,217	$ 20,595	$ 23,972	$ 26,580	$ 29,188	$ 31,796	$ 34,404	$ 37,013	$ 37,078	$ 37,144	$ 37,210	$ 37,275	$ 37,341
		Saving	$ 999	$ 2,725	$ 5,178	$ 8,359	$ 12,268	$ 25,758	$ 38,047	$ 49,319	$ 59,574	$ 68,811	$ 76,845	$ 83,215	$ 87,436	$ 97,165	$ 104,744	$ 116,654	$ 131,049	$ 147,795	$ 166,894	$ 188,345	$ 218,323
Couple < 3 children	Sailor	Income	$ 2,410	$ 2,894	$ 4,021	$ 5,148	$ 6,275	$ 14,163	$ 15,508	$ 8,537	$ 10,332	$ 12,127	$ 13,921	$ 31,759	$ 33,557	$ 35,355	$ 37,153	$ 39,492	$ 41,003	$ 42,381	$ 43,759	$ 45,137	$ 48,369
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 14,274	$ 18,087	$ 21,899	$ 25,711	$ 28,020	$ 30,329	$ 32,637	$ 34,946	$ 37,255	$ 38,074	$ 38,893	$ 39,712	$ 40,531	$ 41,350
		Saving	$ 484	$ 1,125	$ 2,567	$ 4,810	$ 7,853	$ 14,931	$ 19,978	$ 14,240	$ 6,486	-$ 3,287	-$ 15,077	-$ 11,338	-$ 8,110	-$ 5,393	-$ 3,185	-$ 948	$ 1,982	$ 5,470	$ 9,516	$ 14,122	$ 21,140
	Officer	Income	$ 2,925	$ 3,979	$ 5,032	$ 6,086	$ 7,140	$ 20,575	$ 22,752	$ 16,612	$ 18,012	$ 19,411	$ 20,810	$ 32,951	$ 33,410	$ 41,525	$ 41,984	$ 48,922	$ 51,473	$ 53,891	$ 56,308	$ 58,726	$ 67,319
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 14,274	$ 18,087	$ 21,899	$ 25,711	$ 28,020	$ 30,329	$ 32,637	$ 34,946	$ 37,255	$ 38,074	$ 38,893	$ 39,712	$ 40,531	$ 41,350
		Saving	$ 999	$ 2,725	$ 5,178	$ 8,359	$ 12,268	$ 25,758	$ 38,047	$ 40,385	$ 40,310	$ 37,822	$ 32,921	$ 37,852	$ 40,933	$ 49,820	$ 56,858	$ 68,525	$ 81,924	$ 96,922	$ 113,518	$ 131,713	$ 157,682
Couple > 2 children	Sailor	Income	$ 2,410	$ 2,894	$ 4,021	$ 5,148	$ 6,275	$ 14,163	$ 15,508	$ 8,537	$ 10,332	$ 12,127	$ 13,921	$ 19,619	$ 20,958	$ 22,297	$ 23,636	$ 24,975	$ 26,009	$ 27,043	$ 28,077	$ 29,111	$ 32,020
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 14,274	$ 18,087	$ 21,899	$ 25,711	$ 27,504	$ 29,297	$ 31,089	$ 32,882	$ 34,675	$ 35,329	$ 35,983	$ 36,636	$ 37,290	$ 37,944
		Saving	$ 484	$ 1,125	$ 2,567	$ 4,810	$ 7,853	$ 14,931	$ 19,978	$ 14,240	$ 6,486	-$ 3,287	-$ 15,077	-$ 22,962	-$ 31,302	-$ 40,094	-$ 49,341	-$ 59,041	-$ 68,361	-$ 77,301	-$ 85,861	-$ 94,041	-$ 99,965
	Officer	Income	$ 2,925	$ 3,979	$ 5,032	$ 6,086	$ 7,140	$ 20,575	$ 22,752	$ 16,612	$ 18,012	$ 19,411	$ 20,810	$ 20,810	$ 20,810	$ 28,466	$ 28,466	$ 34,404	$ 36,478	$ 38,552	$ 40,626	$ 42,700	$ 50,971
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 14,274	$ 18,087	$ 21,899	$ 25,711	$ 27,504	$ 29,297	$ 31,089	$ 32,882	$ 34,675	$ 35,329	$ 35,983	$ 36,636	$ 37,290	$ 37,944
		Saving	$ 999	$ 2,725	$ 5,178	$ 8,359	$ 12,268	$ 25,758	$ 38,047	$ 40,385	$ 40,310	$ 37,822	$ 32,921	$ 26,228	$ 17,742	$ 15,118	$ 10,702	$ 10,432	$ 11,582	$ 14,151	$ 18,141	$ 23,550	$ 36,576

SEAMAN																			
Annual Rental - Service assessed			$ 1,878	$ 1,757	$ 1,852	$ 1,829	$ 2,208	$ 2,442	$ 2,922	$ 3,054	$ 2,902	$ 2,995	$ 2,997	$ 2,928	$ 3,361	$ 4,104	$ 4,826	$ 5,271
Annual Barrack charge (25% of Rental)			$ 470	$ 439	$ 463	$ 457	$ 552	$ 611	$ 730	$ 763	$ 725	$ 749	$ 749	$ 732	$ 840	$ 1,026	$ 1,207	$ 1,318
1990	YEAR		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Age		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
													Median house price	$ 295,608				
Single	Sailor	Income	$ 12,567	$ 13,695	$ 14,310	$ 14,926	$ 15,542	$ 16,157	$ 18,287	$ 20,416	$ 21,993	$ 23,569	$ 25,145	$ 28,992	$ 32,212	$ 35,433	$ 38,653	$ 41,874
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 20,586	$ 20,892	$ 21,497	$ 22,102	$ 22,706	$ 23,311	$ 23,916
		Saving	-$ 5,631	-$ 10,368	-$ 14,721	-$ 18,691	-$ 22,279	-$ 25,484	-$ 26,866	-$ 26,424	-$ 24,711	-$ 21,728	-$ 17,475	-$ 9,981	$ 130	$ 12,856	$ 28,198	$ 46,157
	Officer	Income	$ 15,143	$ 16,759	$ 18,375	$ 19,991	$ 21,607	$ 30,910	$ 32,263	$ 33,615	$ 34,968	$ 36,320	$ 37,673	$ 41,182	$ 44,691	$ 48,199	$ 55,197	$ 62,195
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 20,586	$ 20,892	$ 21,497	$ 22,102	$ 23,058	$ 24,013	$ 24,969
		Saving	-$ 3,055	-$ 4,727	-$ 5,016	-$ 3,922	-$ 1,445	$ 10,103	$ 22,698	$ 36,339	$ 51,026	$ 66,761	$ 83,541	$ 103,226	$ 125,815	$ 150,957	$ 182,141	$ 219,367
Couple	Sailor	Income	$ 12,567	$ 13,695	$ 14,310	$ 14,926	$ 15,542	$ 16,157	$ 18,287	$ 20,416	$ 21,993	$ 41,029	$ 43,034	$ 47,139	$ 50,847	$ 54,555	$ 58,263	$ 62,181
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 31,477	$ 30,672	$ 29,868	$ 32,319	$ 34,771	$ 37,222
		Saving	-$ 5,631	-$ 10,368	-$ 14,721	-$ 18,691	-$ 22,279	-$ 25,484	-$ 26,866	-$ 26,424	-$ 24,711	-$ 9,560	$ 1,997	$ 18,464	$ 39,444	$ 61,680	$ 85,172	$ 110,131
	Officer	Income	$ 15,143	$ 16,759	$ 18,375	$ 19,991	$ 21,607	$ 30,910	$ 32,263	$ 33,615	$ 34,968	$ 53,781	$ 55,562	$ 59,329	$ 63,326	$ 67,322	$ 74,807	$ 82,502
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 31,477	$ 32,626	$ 33,775	$ 34,924	$ 36,073	$ 37,222
			-$ 3,055	-$ 4,727	-$ 5,016	-$ 3,922	-$ 1,445	$ 10,103	$ 22,698	$ 36,339	$ 51,026	$ 78,929	$ 103,014	$ 129,718	$ 159,269	$ 191,667	$ 230,402	$ 275,682
Couple < 3 children	Sailor	Income	$ 12,567	$ 13,695	$ 14,310	$ 14,926	$ 15,542	$ 16,157	$ 18,287	$ 20,416	$ 21,993	$ 41,029	$ 25,145	$ 28,992	$ 32,212	$ 54,555	$ 58,263	$ 62,181
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 34,534	$ 35,758	$ 36,981	$ 38,205	$ 39,429	$ 40,652
		Saving	-$ 5,631	-$ 10,368	-$ 14,721	-$ 18,691	-$ 22,279	-$ 25,484	-$ 26,866	-$ 26,424	-$ 24,711	-$ 9,560	-$ 18,949	-$ 25,716	-$ 30,485	-$ 14,135	$ 4,700	$ 26,229
	Officer	Income	$ 15,143	$ 16,759	$ 18,375	$ 19,991	$ 21,607	$ 30,910	$ 32,263	$ 33,615	$ 34,968	$ 53,781	$ 37,673	$ 41,182	$ 44,691	$ 67,322	$ 74,807	$ 82,502
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 34,534	$ 35,758	$ 36,981	$ 38,205	$ 39,429	$ 40,652
		Saving	-$ 3,055	-$ 4,727	-$ 5,016	-$ 3,922	-$ 1,445	$ 10,103	$ 22,698	$ 36,339	$ 51,026	$ 78,929	$ 82,067	$ 87,491	$ 95,200	$ 124,317	$ 159,696	$ 201,546
Couple > 2 children	Sailor	Income	$ 12,567	$ 13,695	$ 14,310	$ 14,926	$ 15,542	$ 16,157	$ 18,287	$ 20,416	$ 21,993	$ 41,029	$ 25,145	$ 28,992	$ 32,212	$ 35,433	$ 38,653	$ 62,181
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 34,534	$ 35,758	$ 36,981	$ 37,234	$ 37,486	$ 37,738
		Saving	-$ 5,631	-$ 10,368	-$ 14,721	-$ 18,691	-$ 22,279	-$ 25,484	-$ 26,866	-$ 26,424	-$ 24,711	-$ 9,560	-$ 18,949	$ 25,716	-$ 30,485	-$ 32,286	-$ 31,118	-$ 6,675
	Officer	Income	$ 15,143	$ 16,759	$ 18,375	$ 19,991	$ 21,607	$ 30,910	$ 32,263	$ 33,615	$ 34,968	$ 53,781	$ 37,673	$ 41,182	$ 44,691	$ 48,199	$ 55,197	$ 82,502
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 34,534	$ 35,758	$ 36,981	$ 39,897	$ 42,812	$ 45,728
		Saving	-$ 3,055	-$ 4,727	-$ 5,016	-$ 3,922	-$ 1,445	$ 10,103	$ 22,698	$ 36,339	$ 51,026	$ 78,929	$ 82,067	$ 87,491	$ 95,200	$ 103,503	$ 115,888	$ 152,663

MARENG

Annual Rental - Service assessed		49.34	53.82	58.30	62.78	67.27	72.51	75.90	80.70	84.65	88.31	95.65	99.19	99.43	109.20	116.68	130.71	142.43	171.83	247.26	323.73	307.40
Annual Barrack charge (25% of Rental)		12.33	13.45	14.58	15.70	16.82	18.13	18.97	20.17	21.16	22.08	23.91	24.80	24.86	27.30	29.17	32.68	35.61	42.96	61.82	80.93	76.85
1955	**YEAR**	**1955**	**1956**	**1957**	**1958**	**1959**	**1960**	**1961**	**1962**	**1963**	**1964**	**1965**	**1966**	**1967**	**1968**	**1969**	**1970**	**1971**	**1972**	**1973**	**1974**	**1975**
	Age	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**
	Median house price											$ 5,267										
Single	Sailor Income	$ 809	$ 972	$ 1,028	$ 1,056	$ 1,083	$ 1,083	$ 1,483	$ 1,775	$ 2,067	$ 2,017	$ 2,359	$ 2,426	$ 2,493	$ 2,560	$ 3,005	$ 3,450	$ 3,592	$ 3,734	$ 4,598	$ 5,462	$ 6,327
	Sailor Expenditure	$ 683	$ 704	$ 726	$ 747	$ 768	$ 789	$ 884	$ 978	$ 1,072	$ 1,167	$ 1,261	$ 1,331	$ 1,400	$ 1,470	$ 1,540	$ 1,609	$ 1,808	$ 2,007	$ 2,207	$ 2,406	$ 2,605
	Sailor Saving	$ 126	$ 394	$ 696	$ 1,005	$ 1,320	$ 1,614	$ 2,214	$ 3,010	$ 4,005	$ 4,855	$ 5,953	$ 7,048	$ 8,141	$ 9,231	$ 10,696	$ 12,536	$ 14,320	$ 16,046	$ 18,438	$ 21,494	$ 25,217
	Officer Income	$ 982	$ 1,181	$ 1,380	$ 1,579	$ 1,595	$ 1,778	$ 2,234	$ 2,423	$ 2,518	$ 2,613	$ 2,613	$ 3,146	$ 3,680	$ 3,126	$ 3,670	$ 4,214	$ 5,031	$ 5,849	$ 6,667	$ 7,484	$ 8,302
	Officer Expenditure	$ 683	$ 704	$ 726	$ 747	$ 768	$ 789	$ 884	$ 978	$ 1,072	$ 1,167	$ 1,261	$ 1,331	$ 1,400	$ 1,470	$ 1,540	$ 1,609	$ 1,808	$ 2,007	$ 2,207	$ 2,406	$ 2,605
	Officer Saving	$ 299	$ 776	$ 1,430	$ 2,262	$ 3,089	$ 4,078	$ 5,428	$ 6,873	$ 8,319	$ 9,765	$ 11,117	$ 12,933	$ 15,212	$ 16,869	$ 18,999	$ 21,604	$ 24,827	$ 28,668	$ 33,128	$ 38,207	$ 43,905
Couple	Sailor Income	$ 809	$ 972	$ 1,028	$ 1,056	$ 1,083	$ 1,083	$ 1,483	$ 1,775	$ 2,067	$ 2,017	$ 2,359	$ 2,426	$ 2,493	$ 2,560	$ 3,005	$ 3,450	$ 3,592	$ 3,734	$ 4,598	$ 5,462	$ 6,327
	Sailor Expenditure	$ 683	$ 704	$ 726	$ 1,036	$ 1,346	$ 1,656	$ 1,703	$ 1,750	$ 1,797	$ 1,844	$ 1,891	$ 1,998	$ 2,104	$ 2,210	$ 2,316	$ 2,423	$ 2,742	$ 3,060	$ 3,379	$ 3,698	$ 4,017
	Sailor Saving	$ 126	$ 394	$ 696	$ 716	$ 454	-$ 118	-$ 339	-$ 314	-$ 44	$ 128	$ 596	$ 1,024	$ 1,413	$ 1,762	$ 2,450	$ 3,477	$ 4,328	$ 5,001	$ 6,219	$ 7,984	$ 10,293
	Officer Income	$ 982	$ 1,181	$ 1,380	$ 1,579	$ 1,595	$ 1,778	$ 2,234	$ 2,423	$ 2,518	$ 2,613	$ 2,613	$ 3,146	$ 3,680	$ 3,126	$ 3,670	$ 4,214	$ 5,031	$ 5,849	$ 6,667	$ 7,484	$ 8,302
	Officer Expenditure	$ 683	$ 704	$ 726	$ 1,036	$ 1,346	$ 1,656	$ 1,703	$ 1,750	$ 1,797	$ 1,844	$ 1,891	$ 1,998	$ 2,104	$ 2,210	$ 2,316	$ 2,423	$ 2,742	$ 3,060	$ 3,379	$ 3,698	$ 4,017
	Officer Saving	$ 299	$ 776	$ 1,430	$ 1,974	$ 2,223	$ 2,345	$ 2,876	$ 3,549	$ 4,270	$ 5,038	$ 5,759	$ 6,908	$ 8,484	$ 9,400	$ 10,754	$ 12,545	$ 14,834	$ 17,623	$ 20,910	$ 24,696	$ 28,981
Couple < 3 children	Sailor Income	$ 809	$ 972	$ 1,028	$ 1,056	$ 1,083	$ 1,083	$ 1,483	$ 1,775	$ 2,067	$ 2,017	$ 2,359	$ 2,426	$ 2,493	$ 2,560	$ 3,005	$ 3,450	$ 3,592	$ 3,734	$ 4,598	$ 5,462	$ 6,327
	Sailor Expenditure	$ 683	$ 704	$ 726	$ 1,036	$ 1,346	$ 1,656	$ 1,703	$ 1,750	$ 2,042	$ 2,334	$ 2,625	$ 2,772	$ 2,919	$ 3,066	$ 3,213	$ 3,360	$ 3,794	$ 4,229	$ 4,664	$ 5,099	$ 5,533
	Sailor Saving	$ 126	$ 394	$ 696	$ 716	$ 454	-$ 118	-$ 339	-$ 314	-$ 289	-$ 606	-$ 872	-$ 1,219	-$ 1,645	-$ 2,151	-$ 2,359	-$ 2,269	-$ 2,472	-$ 2,967	-$ 3,033	-$ 2,669	-$ 1,876
	Officer Income	$ 982	$ 1,181	$ 1,380	$ 1,579	$ 1,595	$ 1,778	$ 2,234	$ 2,423	$ 2,518	$ 2,613	$ 2,613	$ 3,146	$ 3,680	$ 3,126	$ 3,670	$ 4,214	$ 5,031	$ 5,849	$ 6,667	$ 7,484	$ 8,302
	Officer Expenditure	$ 683	$ 704	$ 726	$ 1,036	$ 1,346	$ 1,656	$ 1,703	$ 1,750	$ 2,042	$ 2,334	$ 2,625	$ 2,772	$ 2,919	$ 3,066	$ 3,213	$ 3,360	$ 3,794	$ 4,229	$ 4,664	$ 5,099	$ 5,533
	Officer Saving	$ 299	$ 776	$ 1,430	$ 1,974	$ 2,223	$ 2,345	$ 2,876	$ 3,549	$ 4,025	$ 4,304	$ 4,291	$ 4,665	$ 5,426	$ 5,487	$ 5,944	$ 6,798	$ 8,035	$ 9,655	$ 11,658	$ 14,044	$ 16,812
Couple > 2 children	Sailor Income	$ 809	$ 972	$ 1,028	$ 1,056	$ 1,083	$ 1,083	$ 1,483	$ 1,775	$ 2,067	$ 2,017	$ 2,359	$ 2,426	$ 2,493	$ 2,560	$ 3,005	$ 3,450	$ 3,592	$ 3,734	$ 4,598	$ 5,462	$ 6,327
	Sailor Expenditure	$ 683	$ 704	$ 726	$ 1,036	$ 1,346	$ 1,656	$ 1,703	$ 1,750	$ 2,042	$ 2,334	$ 2,625	$ 2,772	$ 2,938	$ 3,103	$ 3,268	$ 3,433	$ 3,877	$ 4,321	$ 4,765	$ 5,209	$ 5,653
	Sailor Saving	$ 126	$ 394	$ 696	$ 716	$ 454	-$ 118	-$ 339	-$ 314	-$ 289	-$ 606	-$ 872	-$ 1,219	-$ 1,664	-$ 2,207	-$ 2,470	-$ 2,454	-$ 2,739	-$ 3,327	-$ 3,494	-$ 3,241	-$ 2,567
	Officer Income	$ 982	$ 1,181	$ 1,380	$ 1,579	$ 1,595	$ 1,778	$ 2,234	$ 2,423	$ 2,518	$ 2,613	$ 2,613	$ 3,146	$ 3,680	$ 3,126	$ 3,670	$ 4,214	$ 5,031	$ 5,849	$ 6,667	$ 7,484	$ 8,302
	Officer Expenditure	$ 683	$ 704	$ 726	$ 1,036	$ 1,346	$ 1,656	$ 1,703	$ 1,750	$ 2,042	$ 2,334	$ 2,625	$ 2,772	$ 2,938	$ 3,103	$ 3,268	$ 4,652	$ 3,877	$ 4,321	$ 4,765	$ 5,209	$ 7,529
	Officer Saving	$ 299	$ 776	$ 1,430	$ 1,974	$ 2,223	$ 2,345	$ 2,876	$ 3,549	$ 4,025	$ 4,304	$ 4,291	$ 4,665	$ 5,408	$ 5,431	$ 5,833	$ 5,395	$ 6,549	$ 8,077	$ 9,978	$ 12,254	$ 13,027

MARENG

Annual Rental - Service assessed		$ 307.4	$ 321.6	$ 360.4	$ 367.5	$ 395.3	$ 406.4	$ 573.0	$ 681.9	$ 772.2	$ 909.5	$ 1,047.3	$ 1,197.9	$ 1,546.8	$ 1,545.8	$ 1,785.5	$ 1,878.3	$ 1,756.5	$ 1,852.2	$ 1,828.8	$ 2,207.9	$ 2,442.2
Annual Barrack charge (25% of Rental)		$ 76.9	$ 80.4	$ 90.1	$ 91.9	$ 98.8	$ 101.6	$ 143.3	$ 170.5	$ 193.0	$ 227.4	$ 261.8	$ 299.5	$ 386.7	$ 386.4	$ 446.4	$ 469.6	$ 439.1	$ 463.0	$ 457.2	$ 552.0	$ 610.6
1975	**YEAR**	**1975**	**1976**	**1977**	**1978**	**1979**	**1980**	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**
	Age	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**
	Median house price										$91,826											
Single	Sailor Income	$ 2,410	$ 2,894	$ 3,748	$ 4,601	$ 5,455	$ 6,309	$ 8,537	$ 9,580	$ 10,623	$ 11,665	$ 19,619	$ 20,376	$ 21,134	$ 21,891	$ 25,395	$ 28,899	$ 31,062	$ 33,225	$ 33,694	$ 34,162	$ 34,630
	Sailor Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 3,558	$ 4,993	$ 6,428	$ 7,864	$ 9,299	$ 10,734	$ 12,508	$ 14,283	$ 16,058	$ 17,832	$ 19,607	$ 19,924	$ 20,241	$ 20,559	$ 20,876	$ 21,194
	Sailor Saving	$ 484	$ 1,125	$ 2,294	$ 3,990	$ 6,214	$ 8,965	$ 12,509	$ 15,660	$ 18,419	$ 20,786	$ 29,670	$ 37,538	$ 44,389	$ 50,223	$ 57,786	$ 67,078	$ 78,217	$ 91,201	$ 104,335	$ 117,621	$ 131,057
	Officer Income	$ 2,925	$ 3,381	$ 3,837	$ 4,292	$ 4,748	$ 12,293	$ 13,813	$ 15,563	$ 17,312	$ 19,061	$ 20,810	$ 23,362	$ 25,914	$ 28,466	$ 33,199	$ 37,933	$ 40,130	$ 42,328	$ 44,526	$ 46,723	$ 48,921
	Officer Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 3,558	$ 4,993	$ 6,428	$ 7,864	$ 9,299	$ 10,734	$ 12,508	$ 14,283	$ 16,058	$ 17,832	$ 19,607	$ 19,924	$ 20,241	$ 20,559	$ 20,876	$ 21,194
	Officer Saving	$ 999	$ 2,127	$ 3,385	$ 4,772	$ 6,288	$ 15,023	$ 23,844	$ 32,976	$ 42,426	$ 52,189	$ 62,265	$ 73,119	$ 84,750	$ 97,159	$ 112,526	$ 130,852	$ 151,058	$ 173,145	$ 197,111	$ 222,958	$ 250,685
Couple	Sailor Income	$ 2,410	$ 2,894	$ 3,748	$ 4,601	$ 5,455	$ 13,070	$ 16,076	$ 18,079	$ 20,082	$ 22,085	$ 30,814	$ 32,516	$ 33,733	$ 34,950	$ 38,913	$ 43,417	$ 46,057	$ 48,564	$ 49,376	$ 50,188	$ 50,979
	Sailor Expenditure	$ 1,926	$ 2,958	$ 3,990	$ 5,021	$ 6,053	$ 7,085	$ 10,462	$ 13,840	$ 17,217	$ 20,595	$ 23,972	$ 26,580	$ 29,188	$ 31,796	$ 34,404	$ 37,013	$ 37,078	$ 37,144	$ 37,210	$ 37,275	$ 37,341
	Sailor Saving	$ 484	$ 420	$ 178	-$ 242	-$ 840	$ 5,146	$ 10,760	$ 14,999	$ 17,864	$ 19,355	$ 26,197	$ 32,133	$ 36,678	$ 39,832	$ 44,340	$ 50,745	$ 59,724	$ 71,144	$ 83,310	$ 96,223	$ 109,861
	Officer Income	$ 2,925	$ 3,381	$ 3,837	$ 4,292	$ 4,748	$ 19,054	$ 21,352	$ 24,062	$ 26,772	$ 29,482	$ 32,006	$ 35,502	$ 38,514	$ 41,525	$ 46,717	$ 52,450	$ 55,125	$ 57,667	$ 60,208	$ 62,750	$ 65,269
	Officer Expenditure	$ 1,926	$ 2,958	$ 3,990	$ 5,021	$ 6,053	$ 7,085	$ 10,462	$ 13,840	$ 17,217	$ 20,595	$ 23,972	$ 26,580	$ 29,188	$ 31,796	$ 34,404	$ 37,013	$ 37,078	$ 37,144	$ 37,210	$ 37,275	$ 37,341
	Officer Saving	$ 999	$ 1,422	$ 1,269	$ 540	-$ 765	$ 11,204	$ 22,094	$ 32,317	$ 41,871	$ 50,758	$ 58,792	$ 67,714	$ 77,040	$ 86,768	$ 99,081	$ 114,519	$ 132,565	$ 153,088	$ 176,086	$ 201,561	$ 229,489
Couple < 3 children	Sailor Income	$ 2,410	$ 2,894	$ 3,748	$ 4,601	$ 5,455	$ 13,070	$ 16,076	$ 9,580	$ 10,623	$ 11,665	$ 19,619	$ 32,516	$ 33,733	$ 34,950	$ 38,913	$ 43,417	$ 46,057	$ 48,564	$ 49,376	$ 50,188	$ 50,979
	Sailor Expenditure	$ 1,926	$ 2,958	$ 3,990	$ 5,021	$ 6,053	$ 7,085	$ 10,462	$ 14,275	$ 18,087	$ 21,899	$ 25,711	$ 28,020	$ 30,329	$ 32,637	$ 34,946	$ 37,255	$ 38,074	$ 38,893	$ 39,712	$ 40,531	$ 41,350
	Sailor Saving	$ 484	$ 420	$ 178	-$ 242	-$ 840	$ 5,146	$ 10,760	$ 6,065	-$ 1,399	-$ 11,633	-$ 17,726	-$ 13,230	-$ 9,826	-$ 7,513	-$ 3,546	$ 2,616	$ 10,599	$ 20,270	$ 29,934	$ 39,591	$ 49,219
	Officer Income	$ 2,925	$ 3,381	$ 3,837	$ 4,292	$ 4,748	$ 12,293	$ 13,813	$ 15,563	$ 17,312	$ 19,061	$ 20,810	$ 23,362	$ 25,914	$ 28,466	$ 33,199	$ 37,933	$ 40,130	$ 42,328	$ 44,526	$ 46,723	$ 48,921
	Officer Expenditure	$ 1,926	$ 2,958	$ 3,990	$ 5,021	$ 6,053	$ 7,085	$ 10,462	$ 14,275	$ 18,087	$ 21,899	$ 25,711	$ 28,020	$ 30,329	$ 32,637	$ 34,946	$ 37,255	$ 38,074	$ 38,893	$ 39,712	$ 40,531	$ 41,350
	Officer Saving	$ 999	$ 1,422	$ 1,269	$ 540	-$ 765	$ 4,443	$ 7,794	$ 9,082	$ 8,307	$ 5,470	$ 569	-$ 4,089	-$ 8,504	-$ 12,675	-$ 14,422	-$ 13,744	-$ 11,688	-$ 8,253	-$ 3,440	$ 2,752	$ 10,323
Couple > 2 children	Sailor Income	$ 2,410	$ 2,894	$ 3,748	$ 4,601	$ 5,455	$ 13,070	$ 16,076	$ 9,580	$ 10,623	$ 11,665	$ 19,619	$ 20,376	$ 21,134	$ 21,891	$ 25,395	$ 28,899	$ 31,062	$ 33,225	$ 33,694	$ 34,162	$ 34,630
	Sailor Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 14,275	$ 18,087	$ 21,899	$ 25,711	$ 27,504	$ 29,297	$ 31,089	$ 32,882	$ 34,675	$ 35,329	$ 35,983	$ 36,636	$ 37,290	$ 37,944
	Sailor Saving	$ 484	$ 1,125	$ 2,294	$ 3,990	$ 6,214	$ 12,199	$ 17,813	$ 13,118	$ 5,654	-$ 4,580	-$ 10,672	-$ 17,800	-$ 25,963	-$ 35,161	-$ 42,648	-$ 48,423	-$ 52,690	-$ 55,447	-$ 58,390	-$ 61,518	-$ 64,832
	Officer Income	$ 2,925	$ 3,381	$ 3,837	$ 4,292	$ 4,748	$ 12,293	$ 13,813	$ 15,563	$ 17,312	$ 19,061	$ 20,810	$ 23,362	$ 25,914	$ 28,466	$ 33,199	$ 37,933	$ 40,130	$ 42,328	$ 44,526	$ 46,723	$ 48,921
	Officer Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 14,275	$ 18,087	$ 21,899	$ 25,711	$ 27,504	$ 29,297	$ 31,089	$ 32,882	$ 34,675	$ 35,329	$ 35,983	$ 36,636	$ 37,290	$ 37,944
	Officer Saving	$ 999	$ 2,127	$ 3,385	$ 4,772	$ 6,288	$ 11,497	$ 14,848	$ 16,136	$ 15,361	$ 12,523	$ 7,622	$ 3,481	$ 98	-$ 2,525	-$ 2,208	$ 1,050	$ 5,852	$ 12,197	$ 20,086	$ 29,519	$ 40,496

MARENG																		
Annual Rental - Service assessed			$ 1,878	$ 1,757	$ 1,852	$ 1,829	$ 2,208	$ 2,442	$ 2,922	$ 3,054	$ 2,902	$ 2,995	$ 2,997	$ 2,928	$ 3,361	$ 4,104	$ 4,826	$ 5,271
Annual Barrack charge (25% of Rental)			$ 470	$ 439	$ 463	$ 457	$ 552	$ 611	$ 730	$ 763	$ 725	$ 749	$ 749	$ 732	$ 840	$ 1,026	$ 1,207	$ 1,318
1990	YEAR		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Age		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
												Median house price		$ 295,608				
Single	Sailor	Income	$ 12,774	$ 14,347	$ 14,804	$ 15,260	$ 15,717	$ 16,173	$ 21,743	$ 23,195	$ 24,647	$ 26,099	$ 32,362	$ 33,748	$ 35,134	$ 36,520	$ 36,520	$ 45,184
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 20,586	$ 20,892	$ 22,288	$ 23,683	$ 25,078	$ 26,474	$ 27,869
		Saving	-$ 5,424	-$ 9,507	-$ 13,367	-$ 17,003	-$ 20,416	-$ 23,604	-$ 21,530	-$ 18,310	-$ 13,943	-$ 8,431	$ 3,038	$ 14,499	$ 25,949	$ 37,391	$ 47,437	$ 64,751
	Officer	Income	$ 14,843	$ 16,655	$ 18,466	$ 20,277	$ 21,596	$ 23,899	$ 33,014	$ 34,034	$ 35,053	$ 36,073	$ 37,093	$ 40,790	$ 44,487	$ 48,185	$ 53,529	$ 58,873
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 20,586	$ 20,892	$ 22,288	$ 23,683	$ 25,078	$ 26,474	$ 27,869
		Saving	-$ 3,354	-$ 5,130	-$ 5,328	-$ 3,948	-$ 1,481	$ 3,056	$ 16,402	$ 30,461	$ 45,234	$ 60,721	$ 76,922	$ 95,424	$ 116,229	$ 139,335	$ 166,390	$ 197,394
Couple	Sailor	Income	$ 12,774	$ 14,347	$ 14,804	$ 15,260	$ 15,717	$ 16,173	$ 21,743	$ 23,195	$ 24,647	$ 43,559	$ 50,251	$ 51,895	$ 53,769	$ 55,642	$ 56,130	$ 65,491
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 31,477	$ 32,626	$ 33,775	$ 37,517	$ 41,259	$ 45,001
		Saving	-$ 5,424	-$ 9,507	-$ 13,367	-$ 17,003	-$ 20,416	-$ 23,604	-$ 21,530	-$ 18,310	-$ 13,943	$ 3,737	$ 22,511	$ 41,780	$ 61,774	$ 79,900	$ 94,771	$ 115,261
	Officer	Income	$ 14,843	$ 16,655	$ 18,466	$ 20,277	$ 21,596	$ 23,899	$ 33,014	$ 34,034	$ 35,053	$ 53,534	$ 54,982	$ 58,938	$ 63,123	$ 67,307	$ 73,139	$ 79,180
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 31,477	$ 32,626	$ 33,775	$ 37,517	$ 41,259	$ 45,001
		Saving	-$ 3,354	-$ 5,130	-$ 5,328	-$ 3,948	-$ 1,481	$ 3,056	$ 16,402	$ 30,461	$ 45,234	$ 72,889	$ 96,395	$ 122,706	$ 152,054	$ 181,844	$ 213,724	$ 247,904
Couple < 3 children	Sailor	Income	$ 12,774	$ 14,347	$ 14,804	$ 15,260	$ 15,717	$ 16,173	$ 21,743	$ 23,195	$ 24,647	$ 43,559	$ 32,362	$ 33,748	$ 35,134	$ 55,642	$ 56,130	$ 65,491
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 27,407	$ 34,534	$ 35,758	$ 36,981	$ 38,205	$ 39,429	$ 40,652
		Saving	-$ 5,424	-$ 9,507	-$ 13,367	-$ 17,003	-$ 20,416	-$ 23,604	-$ 21,530	-$ 18,310	-$ 13,943	$ 2,208	$ 36	-$ 1,975	-$ 3,822	$ 13,615	$ 30,316	$ 55,155
	Officer	Income	$ 14,843	$ 16,655	$ 18,466	$ 20,277	$ 21,596	$ 23,899	$ 33,014	$ 34,034	$ 35,053	$ 53,534	$ 37,093	$ 40,790	$ 44,487	$ 67,307	$ 73,139	$ 79,180
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 27,407	$ 34,534	$ 35,758	$ 36,981	$ 41,265	$ 45,549	$ 49,832
		Saving	-$ 3,354	-$ 5,130	-$ 5,328	-$ 3,948	-$ 1,481	$ 3,056	$ 16,402	$ 30,461	$ 45,234	$ 71,361	$ 73,919	$ 78,951	$ 86,457	$ 112,499	$ 140,090	$ 169,437
Couple > 2 children	Sailor	Income	$ 12,774	$ 14,347	$ 14,804	$ 15,260	$ 15,717	$ 16,173	$ 21,743	$ 23,195	$ 24,647	$ 43,559	$ 32,362	$ 33,748	$ 35,134	$ 36,520	$ 36,520	$ 65,491
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 34,534	$ 35,758	$ 36,981	$ 37,234	$ 37,486	$ 37,738
		Saving	-$ 5,424	-$ 9,507	-$ 13,367	-$ 17,003	-$ 20,416	-$ 23,604	-$ 21,530	-$ 18,310	-$ 13,943	$ 3,737	$ 1,564	-$ 446	-$ 2,293	-$ 3,007	-$ 3,973	$ 23,780
	Officer	Income	$ 14,843	$ 16,655	$ 18,466	$ 20,277	$ 21,596	$ 23,899	$ 33,014	$ 34,034	$ 35,053	$ 36,073	$ 37,093	$ 40,790	$ 44,487	$ 48,185	$ 53,529	$ 58,873
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 27,407	$ 34,534	$ 35,758	$ 36,981	$ 39,897	$ 42,812	$ 45,728
		Saving	-$ 3,354	-$ 5,130	-$ 5,328	-$ 3,948	-$ 1,481	$ 3,056	$ 16,402	$ 30,461	$ 45,234	$ 53,900	$ 56,459	$ 61,491	$ 68,997	$ 77,285	$ 88,001	$ 101,147

SUPPLY

Annual Rental - Service assessed			$ 49.34	$ 53.82	$ 58.30	$ 62.78	$ 67.27	$ 72.51	$ 75.90	$ 80.70	$ 84.65	$ 88.31	$ 95.65	$ 99.19	$ 99.43	$ 109.20	$ 116.68	$ 130.71	$ 142.43	$ 171.83	$ 247.26	$ 323.73	$ 307.40
Annual Barrack charge (25% of Rental)			$ 12.33	$ 13.45	$ 14.58	$ 15.70	$ 16.82	$ 18.13	$ 18.97	$ 20.17	$ 21.16	$ 22.08	$ 23.91	$ 24.80	$ 24.86	$ 27.30	$ 29.17	$ 32.68	$ 35.61	$ 42.96	$ 61.82	$ 80.93	$ 76.85
1955	**YEAR**		**1955**	**1956**	**1957**	**1958**	**1959**	**1960**	**1961**	**1962**	**1963**	**1964**	**1965**	**1966**	**1967**	**1968**	**1969**	**1970**	**1971**	**1972**	**1973**	**1974**	**1975**
	Age		**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**
											Median house price		$ 5,267											
Single	Sailor	Income	$ 809	$ 972	$ 1,060	$ 1,148	$ 1,236	$ 1,236	$ 1,278	$ 1,320	$ 1,362	$ 1,404	$ 1,446	$ 1,947	$ 2,448	$ 2,949	$ 2,359	$ 3,450	$ 3,570	$ 3,691	$ 4,545	$ 5,399	6254
		Expenditure	$ 683	$ 704	$ 726	$ 747	$ 768	$ 789	$ 884	$ 978	$ 1,072	$ 1,167	$ 1,261	$ 1,331	$ 1,400	$ 1,470	$ 1,540	$ 1,609	$ 1,808	$ 2,007	$ 2,207	$ 2,406	$ 2,605
		Saving	$ 126	$ 394	$ 728	$ 1,130	$ 1,598	$ 2,045	$ 2,439	$ 2,782	$ 3,071	$ 3,309	$ 3,494	$ 4,110	$ 5,158	$ 6,637	$ 7,456	$ 9,296	$ 11,058	$ 12,741	$ 15,080	$ 18,073	$ 21,722
	Officer	Income	$ 982	$ 982	$ 1,187	$ 1,391	$ 1,595	$ 1,778	$ 2,234	$ 2,328	$ 2,423	$ 2,518	$ 2,613	$ 2,870	3126	$ 3,489	$ 3,851	$ 4,214	$ 4,385	$ 4,556	$ 4,728	4899	$ 8,302
		Expenditure	$ 683	$ 704	$ 726	$ 747	$ 768	$ 2,230	$ 884	$ 978	$ 1,072	$ 1,167	$ 2,529	$ 2,345	$ 2,161	$ 1,977	$ 1,793	$ 1,609	$ 2,332	$ 3,056	$ 3,779	$ 4,502	$ 5,225
		Saving	$ 299	$ 577	$ 1,038	$ 1,682	$ 2,509	$ 2,057	$ 3,407	$ 4,758	$ 6,109	$ 7,460	$ 7,543	$ 8,068	$ 9,033	$ 10,544	$ 12,602	$ 15,207	$ 17,259	$ 18,760	$ 19,710	$ 20,107	$ 23,184
Couple	Sailor	Income	$ 809	$ 972	$ 1,060	$ 1,148	$ 1,236	$ 1,236	$ 1,278	$ 1,320	$ 1,362	$ 1,404	$ 1,446	$ 1,947	$ 2,448	$ 2,949	$ 2,359	$ 3,450	$ 3,570	$ 3,691	$ 4,545	$ 5,399	$ 6,254
		Expenditure	$ 683	$ 704	$ 726	$ 1,098	$ 1,413	$ 1,656	$ 1,703	$ 1,750	$ 1,797	$ 1,844	$ 1,891	$ 1,998	$ 2,104	$ 2,210	$ 2,316	$ 2,423	$ 1,808	$ 2,007	$ 2,207	$ 2,406	$ 4,017
		Saving	$ 126	$ 394	$ 728	$ 778	$ 601	$ 182	-$ 243	-$ 673	-$ 1,108	-$ 1,548	-$ 1,994	-$ 2,045	-$ 1,701	-$ 962	-$ 920	$ 107	$ 1,869	$ 3,552	$ 5,891	$ 8,884	$ 11,121
	Officer	Income	$ 982	$ 982	$ 1,187	$ 1,391	$ 1,595	$ 1,778	$ 2,234	$ 2,328	$ 2,423	$ 2,518	$ 2,613	$ 2,870	$ 3,126	$ 3,489	$ 3,851	$ 4,214	$ 4,385	$ 4,556	$ 4,728	$ 4,899	$ 8,302
		Expenditure	$ 683	$ 704	$ 726	$ 1,098	$ 1,413	$ 2,230	$ 1,703	$ 1,750	$ 1,797	$ 1,844	$ 2,529	$ 2,669	$ 2,809	$ 2,949	$ 3,088	$ 3,228	$ 3,628	$ 4,027	$ 4,426	$ 4,826	$ 5,225
		Saving	$ 299	$ 577	$ 1,038	$ 1,331	$ 1,512	$ 1,060	$ 1,591	$ 2,170	$ 2,796	$ 3,469	$ 3,553	$ 3,753	$ 4,071	$ 4,611	$ 5,374	$ 6,359	$ 7,117	$ 7,647	$ 7,948	$ 8,022	$ 11,099
Couple < 3 children	Sailor	Income	$ 809	$ 972	$ 1,060	$ 1,148	$ 1,236	$ 1,236	$ 1,278	$ 1,320	$ 1,362	$ 1,404	$ 1,446	$ 1,947	$ 2,448	$ 2,949	$ 2,359	$ 3,450	$ 3,570	$ 3,691	$ 4,545	$ 5,399	$ 6,254
		Expenditure	$ 683	$ 704	$ 726	$ 1,098	$ 1,413	$ 1,656	$ 1,703	$ 1,750	$ 2,042	$ 2,334	$ 2,625	$ 2,772	$ 2,919	$ 3,066	$ 3,213	$ 3,360	$ 3,733	$ 4,106	$ 4,479	$ 4,853	$ 5,226
		Saving	$ 126	$ 394	$ 728	$ 778	$ 601	$ 182	-$ 243	-$ 673	-$ 1,353	-$ 2,282	-$ 3,462	-$ 4,287	-$ 4,759	-$ 4,876	$ 5,729	-$ 5,639	-$ 5,802	-$ 6,218	-$ 6,152	-$ 5,606	-$ 4,578
	Officer	Income	$ 982	$ 982	$ 1,187	$ 1,391	$ 1,595	$ 1,778	$ 2,234	$ 2,328	$ 2,423	$ 2,518	$ 2,613	$ 2,933	$ 3,253	$ 3,573	$ 3,893	$ 4,214	$ 4,385	$ 4,556	$ 4,728	$ 4,899	$ 8,302
		Expenditure	$ 683	$ 704	$ 726	$ 1,098	$ 1,413	$ 3,141	$ 1,703	$ 1,750	$ 2,042	$ 2,334	$ 3,563	$ 3,760	$ 3,957	$ 4,154	$ 4,351	$ 4,548	$ 5,110	$ 5,673	$ 6,235	$ 6,798	$ 7,361
		Saving	$ 299	$ 577	$ 1,038	$ 1,331	$ 1,512	$ 149	$ 680	$ 1,258	$ 1,640	$ 1,824	$ 874	$ 46	-$ 657	-$ 1,238	-$ 1,695	-$ 2,029	-$ 2,755	-$ 3,871	$ 5,378	-$ 7,277	-$ 6,335
Couple > 2 children	Sailor	Income	$ 809	$ 972	$ 1,060	$ 1,148	$ 1,236	$ 1,236	$ 1,278	$ 1,320	$ 1,362	$ 1,404	$ 1,446	$ 1,947	$ 2,448	$ 2,949	$ 2,359	$ 3,450	$ 3,570	$ 3,691	$ 4,545	$ 5,399	$ 6,254
		Expenditure	$ 683	$ 704	$ 726	$ 1,098	$ 1,413	$ 1,656	$ 1,703	$ 1,750	$ 2,042	$ 2,334	$ 2,683	$ 2,833	$ 2,983	$ 3,133	$ 3,283	$ 3,433	$ 3,877	$ 4,321	$ 4,765	$ 5,209	$ 5,653.05
		Saving	$ 126	$ 394	$ 728	$ 778	$ 601	$ 182	-$ 243	-$ 673	-$ 1,353	-$ 2,282	-$ 3,520	-$ 4,406	-$ 4,942	-$ 5,126	-$ 6,051	$ 6,035	-$ 6,342	-$ 6,973	-$ 7,193	-$ 7,003	-$ 6,402
	Officer	Income	$ 982	$ 982	$ 1,187	$ 1,391	$ 1,595	$ 1,778	$ 2,234	$ 2,328	$ 2,423	$ 2,518	$ 2,613	$ 2,933	$ 3,253	$ 3,573	$ 3,893	$ 4,214	$ 5,031	$ 5,849	$ 6,667	$ 7,484	$ 8,302
		Expenditure	$ 683	$ 704	$ 726	$ 1,098	$ 1,413	$ 3,213	$ 2,839	$ 3,040	$ 3,242	$ 3,443	$ 3,645	$ 3,846	$ 4,047	$ 4,249	$ 4,450	$ 4,652	5227	5803	6378	6954	$ 7,529
		Saving	$ 299	$ 577	$ 1,038	$ 1,331	$ 1,512	$ 77	-$ 528	-$ 1,240	-$ 2,059	-$ 2,984	-$ 4,016	-$ 4,929	-$ 5,724	-$ 6,399	-$ 6,956	$ 7,394	-$ 7,590	-$ 7,544	-$ 7,256	-$ 6,725	-$ 5,952

SUPPLY

Service assessed Rent			$ 307.4	$ 321.6	$ 360.4	$ 367.5	$ 395.3	$ 406.4	$ 573.0	$ 681.9	$ 772.2	$ 909.5	$ 1,047.3	$ 1,197.9	$ 1,546.8	$ 1,545.8	$ 1,785.5	$ 1,878.3	$ 1,756.5	$ 1,852.2	$ 1,828.8	$ 2,207.9	$ 2,442.2
Annual Barrack charge (25% of Rental)			$ 76.9	$ 80.4	$ 90.1	$ 91.9	$ 98.8	$ 101.6	$ 143.3	$ 170.5	$ 193.0	$ 227.4	$ 261.8	$ 299.5	$ 386.7	$ 386.4	$ 446.4	$ 469.6	$ 439.1	$ 463.0	$ 457.2	$ 552.0	$ 610.6
1975	**YEAR**		**1975**	**1976**	**1977**	**1978**	**1979**	**1980**	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**
	Age		**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**
											Median house price		$ 91,826											
Single	Sailor	Income	$ 2,410	$ 2,894	$ 4,305	$ 5,716	$ 7,126	$ 8,537	$ 9,614	$ 10,691	$ 11,768	$ 12,844	$ 13,921	$ 19,619	$ 19,619	$ 19,619	$ 19,619	$ 25,753	$ 25,753	$ 28,506	$ 28,506	$ 28,506	$ 29,960
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 3,558	$ 5,575	$ 7,592	$ 9,609	$ 11,626	$ 13,643	$ 15,908	$ 18,174	$ 20,439	$ 22,704	$ 24,969	$ 25,293	$ 25,581	$ 25,877	$ 26,169	$ 26,411
		Saving	$ 484	$ 1,125	$ 2,851	$ 5,661	$ 9,556	$ 14,535	$ 18,574	$ 21,673	$ 23,831	$ 25,050	$ 25,328	$ 29,038	$ 30,483	$ 29,662	$ 26,577	$ 27,360	$ 27,820	$ 30,745	$ 33,374	$ 35,710	$ 39,260
	Officer	Income	$ 2,925	$ 3,381	$ 3,837	$ 4,292	$ 4,748	$ 12,293	$ 13,996	$ 15,700	$ 17,403	$ 19,107	$ 20,810	$ 24,638	$ 28,466	$ 30,152	$ 31,838	$ 35,210	$ 37,447	$ 39,684	$ 41,920	$ 44,157	$ 50,193
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 3,558	$ 5,575	$ 7,592	$ 9,609	$ 11,626	$ 13,643	$ 15,908	$ 18,174	$ 20,439	$ 22,704	$ 24,969	$ 25,293	$ 25,581	$ 25,877	$ 26,169	$ 26,411
		Saving	$ 999	$ 2,127	$ 3,385	$ 4,772	$ 6,288	$ 15,023	$ 23,445	$ 31,553	$ 39,347	$ 46,828	$ 53,995	$ 62,725	$ 73,017	$ 82,730	$ 91,864	$ 102,105	$ 114,259	$ 128,361	$ 144,405	$ 162,392	$ 186,174
Couple	Sailor	Income	$ 2,410	$ 2,894	$ 4,305	$ 5,716	$ 7,126	$ 15,299	$ 17,153	$ 19,190	$ 21,227	$ 23,265	$ 25,116	$ 31,759	$ 32,218	$ 32,677	$ 33,137	$ 40,271	$ 40,748	$ 43,845	$ 44,188	$ 44,532	$ 46,308
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 13,840	$ 17,217	$ 20,595	$ 23,972	$ 26,580	$ 29,188	$ 31,796	$ 34,404	$ 37,013	$ 38,835	$ 38,996	$ 39,039	$ 39,483	$ 37,341
		Saving	$ 484	$ 1,125	$ 2,851	$ 5,661	$ 9,556	$ 17,770	$ 24,460	$ 29,811	$ 33,821	$ 36,491	$ 37,636	$ 42,814	$ 45,844	$ 46,725	$ 45,457	$ 48,715	$ 50,628	$ 55,477	$ 60,626	$ 65,675	$ 74,642
	Officer	Income	$ 2,925	$ 3,381	$ 3,837	$ 4,292	$ 4,748	$ 19,054	$ 21,535	$ 24,199	$ 26,863	$ 29,527	$ 32,006	$ 36,778	$ 41,065	$ 43,211	$ 45,356	$ 49,728	$ 52,442	$ 55,022	$ 57,603	$ 60,183	$ 66,541
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 13,840	$ 17,217	$ 20,595	$ 23,972	$ 26,580	$ 29,188	$ 31,796	$ 34,404	$ 37,013	$ 38,835	$ 38,996	$ 39,039	$ 39,483	$ 37,341
		Saving	$ 999	$ 2,127	$ 3,385	$ 4,772	$ 6,288	$ 18,258	$ 29,331	$ 39,691	$ 49,337	$ 58,269	$ 66,303	$ 76,501	$ 88,378	$ 99,793	$ 110,745	$ 123,460	$ 137,067	$ 153,093	$ 171,657	$ 192,357	$ 221,557
Couple < 3 children	Sailor	Income	$ 2,410	$ 2,894	$ 4,305	$ 5,716	$ 7,126	$ 15,299	$ 17,153	$ 10,691	$ 11,768	$ 12,844	$ 13,921	$ 31,759	$ 32,218	$ 32,677	$ 33,137	$ 40,271	$ 40,748	$ 43,845	$ 44,188	$ 44,532	$ 46,308
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 14,275	$ 18,087	$ 21,899	$ 25,711	$ 28,020	$ 30,329	$ 32,637	$ 34,946	$ 37,255	$ 38,074	$ 38,893	$ 39,712	$ 40,531	$ 41,350
		Saving	$ 484	$ 1,125	$ 2,851	$ 5,661	$ 9,556	$ 17,770	$ 24,460	$ 20,877	$ 14,558	$ 5,503	-$ 6,287	-$ 2,549	-$ 660	-$ 620	-$ 2,429	$ 586	$ 3,260	$ 8,212	$ 12,688	$ 16,689	$ 21,647
	Officer	Income	$ 2,925	$ 3,381	$ 3,837	$ 4,292	$ 4,748	$ 19,054	$ 21,535	$ 15,700	$ 17,403	$ 19,107	$ 20,810	$ 36,778	$ 41,065	$ 43,211	$ 45,356	$ 49,728	$ 52,442	$ 55,022	$ 57,603	$ 60,183	$ 66,541
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 14,275	$ 18,087	$ 21,899	$ 25,711	$ 28,020	$ 30,329	$ 32,637	$ 34,946	$ 37,255	$ 38,074	$ 38,893	$ 39,712	$ 40,531	$ 41,350
		Saving	$ 999	$ 2,127	$ 3,385	$ 4,772	$ 6,288	$ 18,258	$ 29,331	$ 30,756	$ 30,073	$ 27,281	$ 22,380	$ 31,138	$ 41,875	$ 52,448	$ 62,858	$ 75,331	$ 89,699	$ 105,828	$ 123,719	$ 143,371	$ 168,561
Couple > 2 children	Sailor	Income	$ 2,410	$ 2,894	$ 4,305	$ 5,716	$ 7,126	$ 15,299	$ 17,153	$ 10,691	$ 11,768	$ 12,844	$ 13,921	$ 19,619	$ 19,619	$ 19,619	$ 19,619	$ 25,753	$ 25,753	$ 28,506	$ 28,506	$ 28,506	$ 29,960
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 14,275	$ 18,087	$ 21,899	$ 25,711	$ 27,504	$ 29,297	$ 31,089	$ 32,882	$ 34,675	$ 37,085	$ 37,835	$ 38,465	$ 39,498	$ 37,944
		Saving	$ 484	$ 1,125	$ 2,851	$ 5,661	$ 9,556	$ 17,770	$ 24,460	$ 20,877	$ 14,558	$ 5,503	-$ 6,287	-$ 14,173	-$ 23,851	-$ 35,321	-$ 48,585	-$ 57,507	-$ 68,839	-$ 78,168	-$ 88,127	-$ 99,120	-$ 107,104
	Officer	Income	$ 2,925	$ 3,381	$ 3,837	$ 4,292	$ 4,748	$ 19,054	$ 21,535	$ 15,700	$ 17,403	$ 19,107	$ 20,810	$ 24,638	$ 28,466	$ 30,152	$ 31,838	$ 35,210	$ 37,447	$ 39,684	$ 41,920	$ 44,157	$ 50,193
		Expenditure	$ 1,926	$ 2,253	$ 2,579	$ 2,905	$ 3,232	$ 7,085	$ 10,462	$ 14,275	$ 18,087	$ 21,899	$ 25,711	$ 27,504	$ 29,297	$ 31,089	$ 32,882	$ 34,675	$ 37,085	$ 37,835	$ 38,465	$ 39,498	$ 37,944
		Saving	$ 999	$ 2,127	$ 3,385	$ 4,772	$ 6,288	$ 18,258	$ 29,331	$ 30,756	$ 30,073	$ 27,281	$ 22,380	$ 19,514	$ 18,684	$ 17,746	$ 16,703	$ 17,238	$ 17,600	$ 19,449	$ 22,904	$ 27,562	$ 39,810

SUPPLY																			
Service assessed Rent			$ 1,878	$ 1,757	$ 1,852	$ 1,829	$ 2,208	$ 2,442	$ 2,922	$ 3,054	$ 2,902	$ 2,995	$ 2,997	$ 2,928	$ 3,361	$ 4,104	$ 4,826	$ 5,271
Annual Barrack charge (25% of Rental)			$ 470	$ 439	$ 463	$ 457	$ 552	$ 611	$ 730	$ 763	$ 725	$ 749	$ 749	$ 732	$ 840	$ 1,026	$ 1,207	$ 1,318
1990	YEAR		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Age		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
													Median house price	$295,608				
Single	Sailor	Income	$ 12,774	$ 14,347	$ 6,955	$ 11,657	$ 16,359	$ 21,061	$ 21,820	$ 22,580	$ 23,339	$ 24,099	$ 24,859	$ 27,881	$ 30,903	$ 33,926	$ 36,948	$ 39,970
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 20,586	$ 20,892	$ 21,497	$ 22,102	$ 22,706	$ 23,311	$ 23,916
		Saving	-$ 5,424	-$ 9,507	-$ 21,216	-$ 28,456	-$ 31,227	-$ 29,529	-$ 27,377	-$ 24,771	-$ 21,712	-$ 18,199	$ 14,232	-$ 7,848	$ 953	$ 12,172	$ 25,809	$ 41,863
	Officer	Income	$ 14,307	$ 15,716	$ 17,124	$ 18,533	$ 21,986	$ 19,942	$ 32,581	$ 34,805	$ 35,917	$ 37,029	$ 37,029	$ 41,256	$ 45,483	$ 49,067	$ 52,651	$ 56,235
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 20,586	$ 20,892	$ 21,497	$ 22,102	$ 22,706	$ 23,311	$ 23,916
		Saving	$ 3,891	-$ 6,606	-$ 8,145	-$ 8,509	-$ 5,653	-$ 5,073	$ 7,839	$ 22,670	$ 38,307	$ 54,750	$ 70,887	$ 90,647	$ 114,028	$ 140,389	$ 169,729	$ 202,048
Couple	Sailor	Income	$ 12,774	$ 14,347	$ 6,955	$ 11,657	$ 16,359	$ 21,061	$ 21,820	$ 22,580	$ 23,339	$ 41,560	$ 42,748	$ 46,029	$ 49,538	$ 53,048	$ 56,558	$ 60,277
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 31,477	$ 31,571	$ 31,666	$ 31,761	$ 31,856	$ 31,950
		Saving											$ 11,271	$ 25,729	$ 43,601	$ 64,888	$ 89,590	$ 117,917
	Officer	Income	$ 14,307	$ 15,716	$ 17,124	$ 18,533	$ 21,986	$ 19,942	$ 32,581	$ 34,805	$ 35,917	$ 54,490	$ 54,918	$ 59,404	$ 64,118	$ 68,190	$ 72,261	$ 76,542
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 31,477	$ 32,626	$ 33,775	$ 34,924	$ 36,073	$ 37,222
		Saving	-$ 3,891	-$ 6,606	-$ 8,145	-$ 8,509	-$ 5,653	-$ 5,073	$ 7,839	$ 22,670	$ 38,307	$ 66,918	$ 90,360	$ 117,138	$ 147,481	$ 180,747	$ 216,936	$ 256,256
Couple < 3 children	Sailor	Income	$ 12,774	$ 14,347	$ 6,955	$ 11,657	$ 16,359	$ 21,061	$ 21,820	$ 22,580	$ 23,339	$ 41,560	$ 24,859	$ 27,881	$ 30,903	$ 53,048	$ 56,558	$ 60,277
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 34,534	$ 35,758	$ 36,981	$ 38,205	$ 39,429	$ 40,652
		Saving	-$ 5,424	-$ 9,507	-$ 21,216	-$ 28,456	-$ 31,227	-$ 29,529	-$ 27,377	-$ 24,771	-$ 21,712	-$ 6,031	-$ 15,706	-$ 23,583	-$ 29,662	-$ 14,819	$ 2,311	$ 21,935
	Officer	Income	$ 14,307	$ 15,716	$ 17,124	$ 18,533	$ 21,986	$ 19,942	$ 32,581	$ 34,805	$ 35,917	$ 54,490	$ 37,029	$ 41,256	$ 45,483	$ 68,190	$ 72,261	$ 76,542
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 34,534	$ 35,758	$ 36,981	$ 38,205	$ 39,429	$ 40,652
		Saving	-$ 3,891	-$ 6,606	-$ 8,145	-$ 8,509	-$ 5,653	-$ 5,073	$ 7,839	$ 22,670	$ 38,307	$ 66,918	$ 69,413	$ 74,912	$ 83,413	$ 113,398	$ 146,230	$ 182,120
Couple > 2 children	Sailor	Income	$ 12,774	$ 14,347	$ 6,955	$ 11,657	$ 16,359	$ 21,061	$ 21,820	$ 22,580	$ 23,339	$ 41,560	$ 24,859	$ 27,881	$ 30,903	$ 33,926	$ 36,948	$ 60,277
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 34,534	$ 35,758	$ 36,981	$ 37,234	$ 37,486	$ 37,738
		Saving	-$ 5,424	-$ 9,507	-$ 21,216	-$ 28,456	-$ 31,227	-$ 29,529	-$ 27,377	-$ 24,771	-$ 21,712	-$ 6,031	-$ 15,706	-$ 23,583	-$ 29,662	-$ 32,970	-$ 33,508	-$ 10,969
	Officer	Income	$ 14,307	$ 15,716	$ 17,124	$ 18,533	$ 21,986	$ 19,942	$ 32,581	$ 34,805	$ 35,917	$ 54,490	$ 37,029	$ 41,256	$ 45,483	$ 49,067	$ 52,651	$ 76,542
		Expenditure	$ 18,198	$ 18,431	$ 18,664	$ 18,896	$ 19,129	$ 19,362	$ 19,668	$ 19,974	$ 20,280	$ 25,878	$ 34,534	$ 35,758	$ 36,981	$ 37,234	$ 37,486	$ 37,738
		Saving	-$ 3,891	-$ 6,606	-$ 8,145	-$ 8,509	-$ 5,653	-$ 5,073	$ 7,839	$ 22,670	$ 38,307	$ 66,918	$ 69,413	$ 74,912	$ 83,413	$ 95,247	$ 110,412	$ 149,216

Appendix G

Objective Test Results

(Pages 146 & 147)

OBJECTIIVE TEST, ONE

Could the household have accrued sufficient savings with which to make a deposit on a house to the value of the median North Shore house price by the date at which it has been determined that such a consideration would likely to have been made.

SUPPLY		1955-65	1975-84	1990-01
Single	Sailor	Yes	Yes	No
	Officer	Yes	Yes	Yes
Couple	Sailor	No	Yes	No
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	No	Yes	Yes
>2 children	Sailor	No	No	No
	Officer	No	Yes	Yes

MEARENG		1955-65	1975-84	1990-01
Single	Sailor	Yes	Yes	No
	Officer	Yes	Yes	Yes
Couple	Sailor	Yes	Yes	Yes
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	Yes	Yes	Yes
>2 children	Sailor	No	No	No
	Officer	Yes	Yes	Yes

SEAMAN		1955-65	1975-84	1990-01
Single	Sailor	Yes	Yes	No
	Officer	Yes	Yes	Yes
Couple	Sailor	No	Yes	No
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	Yes	Yes	Yes
>2 children	Sailor	No	No	No
	Officer	Yes	Yes	Yes

OBJECTIIVE TEST, TWO

If there were no savings for the first three years of the service person's working life, would this affect the results, and could the households now save for a deposit?

SUPPLY		1955-65	1975-84	1990-01
Single	Sailor	Yes	Yes	No
	Officer	Yes	Yes	Yes
Couple	Sailor	No	Yes	No
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	No	Yes	Yes
>2 children	Sailor	No	No	No
	Officer	No	Yes	Yes

MEARENG		1955-65	1975-84	1990-01
Single	Sailor	Yes	Yes	No
	Officer	Yes	Yes	Yes
Couple	Sailor	No	Yes	Yes
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	Yes	No	Yes
>2 children	Sailor	No	No	No
	Officer	Yes	No	Yes

SEAMAN		1955-65	1975-84	1990-01
Single	Sailor	Yes	No	No
	Officer	Yes	Yes	Yes
Couple	Sailor	No	Yes	Yes
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	Yes	Yes	Yes
>2 children	Sailor	No	No	No
	Officer	Yes	Yes	Yes

OBJECTIIVE TEST, THREE

If it could be assumed that a person or a household made negative choices with respect to their lifestyle when compared to their peers and lived within the statistical expenditure profile i.e. zero balanced all negative saving, could that household save a deposit?

SUPPLY		1955-65	1975-84	1990-01
Single	Sailor	Yes	Yes	No
	Officer	Yes	Yes	Yes
Couple	Sailor	No	Yes	No
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	No	Yes	Yes
>2 children	Sailor	No	No	No
	Officer	No	Yes	Yes

MEARENG		1955-65	1975-84	1990-01
Single	Sailor	Yes	Yes	Yes
	Officer	Yes	Yes	Yes
Couple	Sailor	Yes	Yes	Yes
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	Yes	No	Yes
>2 children	Sailor	No	No	No
	Officer	Yes	No	Yes

SEAMAN		1955-65	1975-84	1990-01
Single	Sailor	Yes	No	No
	Officer	Yes	Yes	Yes
Couple	Sailor	No	Yes	Yes
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	Yes	Yes	Yes
>2 children	Sailor	No	No	No
	Officer	Yes	Yes	Yes

OBJECTIIVE TEST, FOUR

If saving were restricted to the year of marriage forward, would this effect the likelihood of the household's ability to save sufficient for a house deposit?

SUPPLY		1955-65	1975-84	1990-01
Single	Sailor	Yes	Yes	No
	Officer	Yes	Yes	Yes
Couple	Sailor	No	Yes	No
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	No	Yes	Yes
>2 children	Sailor	No	No	No
	Officer	No	Yes	Yes

MEARENG		1955-65	1975-84	1990-01
Single	Sailor	Yes	Yes	No
	Officer	Yes	Yes	Yes
Couple	Sailor	Yes	Yes	Yes
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	Yes	No	Yes
>2 children	Sailor	No	No	No
	Officer	Yes	No	No

SEAMAN		1955-65	1975-84	1990-01
Single	Sailor	Yes	No	No
	Officer	Yes	Yes	Yes
Couple	Sailor	No	Yes	No
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	Yes	Yes	Yes
>2 children	Sailor	No	No	No
	Officer	Yes	Yes	Yes

OBJECTIIVE TEST, FIVE

If a house could be attained through sufficient deposit, could a mortgage be sustained at the rates applicable at the time, against the median house on the North Shore?

SUPPLY		1955-65	1975-84	1990-01
Single	Sailor	Yes	No	No
	Officer	Yes	Yes	Yes
Couple	Sailor	No	No	No
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	No	No	Yes
>2 children	Sailor	No	No	No
	Officer	No	No	Yes

MEARENG		1955-65	1975-84	1990-01
Single	Sailor	Yes	No	No
	Officer	Yes	Yes	Yes
Couple	Sailor	No	No	No
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	Yes	No	Yes
>2 children	Sailor	No	No	No
	Officer	Yes	No	No

SEAMAN		1955-65	1975-84	1990-01
Single	Sailor	Yes	No	No
	Officer	Yes	No	Yes
Couple	Sailor	No	No	No
	Officer	Yes	Yes	Yes
<3 children	Sailor	No	No	No
	Officer	Yes	No	Yes
>2 children	Sailor	No	No	No
	Officer	No	No	Yes

$ 9,657.00		Joined 1955, House purchase 1965				
Median Price		$ 8,490	$ 6,760	$ 9,600	$ 9,386	$ 10,411
SUPPLY		Birkenhead	Devonport	East Coast Bays	Northcote	Takapuna
Single	Sailor	Yes	Yes	Yes	Yes	Yes
	Officer	Yes	Yes	Yes	Yes	Yes
Couple	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
<3 children	Sailor	No	No	No	No	No
	Officer	No	No	No	No	No
>2 children	Sailor	No	No	No	No	No
	Officer	No	No	No	No	No
MEARENG						
Single	Sailor	Yes	Yes	Yes	Yes	Yes
	Officer	Yes	Yes	Yes	Yes	Yes
Couple	Sailor	Yes	Yes	Yes	Yes	No
	Officer	Yes	Yes	Yes	Yes	Yes
<3 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
>2 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
SEAMAN						
Single	Sailor	Yes	Yes	Yes	Yes	Yes
	Officer	Yes	Yes	Yes	Yes	Yes
Couple	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
<3 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
>2 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes

$ 91,826.00		Joined 1975, House purchase 1984				
Median Price		$ 92,155	$ 106,020	$ 106,668	$ 99,891	$ 98,066
SUPPLY		Birkenhead	Devonport	East Coast Bays	Northcote	Takapuna
Single	Sailor	Yes	Yes	Yes	Yes	Yes
	Officer	Yes	Yes	Yes	Yes	Yes
Couple	Sailor	Yes	Yes	Yes	Yes	Yes
	Officer	Yes	Yes	Yes	Yes	Yes
<3 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
>2 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
MEARENG						
Single	Sailor	Yes	Yes	Yes	Yes	Yes
	Officer	Yes	Yes	Yes	Yes	Yes
Couple	Sailor	Yes	Yes	Yes	Yes	Yes
	Officer	Yes	Yes	Yes	Yes	Yes
<3 children	Sailor	No	No	No	No	No
	Officer	No	No	No	No	No
>2 children	Sailor	No	No	No	No	No
	Officer	No	No	No	No	No
SEAMAN						
Single	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
Couple	Sailor	Yes	Yes	Yes	Yes	Yes
	Officer	Yes	Yes	Yes	Yes	Yes
<3 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
>2 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes

$ 295,608.00		Joined 1990, House purchase 2001				
Median Price		$ 336,542	$ 439,100	$ 307,000	$ 294,476	$ 341,750
SUPPLY		Birkenhead	Devonport	East Coast Bays	Northcote	Takapuna
Single	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
Couple	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
<3 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
>2 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
MEARENG						
Single	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
Couple	Sailor	Yes	Yes	Yes	Yes	Yes
	Officer	Yes	Yes	Yes	Yes	Yes
<3 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
>2 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
SEAMAN						
Single	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
Couple	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
<3 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes
>2 children	Sailor	No	No	No	No	No
	Officer	Yes	Yes	Yes	Yes	Yes